KNOWLEDGE, ATTITUDE AND PRACTICES OF RURAL WOMEN IN JORHAT DISTRICT OF ASSAM REGARDING HERBAL MEDICINAL PLANTS

A Thesis

Submitted to the

Assam Agricultural University

In partial fulfillment of the requirements for the degree of

MASTER OF SCIENCE (HOME SCIENCE)

IN

Extension and Communication Management

By
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CERTIFICATE- I

This is to certify that the thesis entitled **"Knowledge, Attitude and Practices of Rural Women in Jorhat District of Assam Regarding Herbal Medicinal Plants"** submitted to the College of Community Science, Assam Agricultural University, in partial fulfillment for the degree of **Master of Science (Home Science)** in **Extension and Communication Management** is a record of research work carried out by **Bondita Dutta** under my personal supervision and guidance.

All help received by her have been duly acknowledged.

No part of this thesis has been reproduced elsewhere for any degree.

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Place: Jorhat

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ABSTRACT

Herbal Medicinal plants are widely used traditionally because of its natural origin. It reduces the side effects and dissatisfaction with the results of synthetic drugs. Among the various reasons of using herbal medicinal plants as herbal medicines are safer, cheaper and easily available than other medicines. And by looking the advantages of herbal medicines, most of the rural women of Jorhat District mostly prefer herbal medicinal plants for curing different ailments of their own or their family members in their daily life. Thus the present study was undertaken to analyse the knowledge, attitude and practice of rural women regarding herbal medicinal plants with the following objectives- i) To study the profile of the rural women, ii) To explore the knowledge of rural women regarding herbal medicinal plants, iii) To identify the attitude of rural women regarding herbal medicinal plants, iv) To find out the practices of rural women regarding selected herbal medicinal plants and v) To explore various problems faced by rural women in practicing selected herbal medicines in their daily life.

The study was conducted in the Jorhat District of Assam. A simple random sampling design was followed for selection of two blocks namely Dhekorgarah and Titabor from respective subdivision i.e. Jorhat and Titabor. 100 numbers of female respondents were selected from 4 villages of the two blocks. Data collection was done by interview method. The findings revealed that majority (46.00%) of the respondents belonged to middle age group i.e. 32-45 years and married (98.00%). Fifty percent of the respondents belonged to ST category and had farming (70.00%) as their main occupation. Highest percentage of respondents belonged to small size (60.00%) nuclear family (68.00%). 70.00 percent of the respondents had education up to HSLC level and 42.00 percent of the respondents were member of one organization, 92.00 percent of the respondents had marginal land holding, 52.00 percent had katcha house, 58.00 percent and 90.00 percent of respondents had medium level of household and farm assets respectively. More than half (54.00%) of the respondents had regularly watched Television and 96.00 percent had regularly contact with Non Government Organization (NGO) and Village Level Extension Worker (VLEW). Only 60.00% of the respondent attended training programme regularly on different agriculture related areas. It was further revealed that majority (67.00%) of the respondents was from medium socio economic status. Data also revealed that 68.00 percent of the respondent had medium level of knowledge and 74.00 percent of respondents had favorable

attitude on herbal medicinal plants. Maximum number of respondents i.e. 98.00 percent respondents had practice different herbal medicinal plants in their daily life. The findings also revealed that lack of knowledge of identification and not standardize doses intake of herbal medicinal plants is the very familiar problem among all respondents.

CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Herbal medicine is the oldest form of healthcare known to mankind. It was an integral part of the development of modern civilization. Primitive man observed and appreciated the great diversity of plants available to him. Herbal medicines and their preparations have been widely used traditionally, for the thousands of years in developing and developed countries. It is owing to its natural origin and lesser side effects or dissatisfaction with the results of synthetic drugs. The World Health Organization (WHO) estimates that 80 percent of the whole population presently uses herbal medicine for some aspect of primary health care. The reasons are the chemical constituents present in herbs are a part of the physiological functions of living flora and hence they are believed to have better compatibility with the human body. Herbs also offer therapeutics for age-related disorders like memory loss, osteoporosis, immune disorders etc. for which no modern medicine is commonly available. In many developing societies, traditional medicine like herbal medicine is a core part is the only system of healthcare available or affordable.

Herbal Medicine sometimes referred to as Herbalism or Botanical Medicine. It is the use of herbs for their therapeutic or medicinal value. It is a common element in ayurvedic, homeopathic naturopathic and traditional oriental.

The term “medicinal plant” includes various types of plants used in herbalism. It is the use of plants for medicinal purposes. For medicinal use people mostly used herbs with have medicinal properties. The word “herb” has been derived from the Latin word, “herba” and an old French word *“herbe”*. Now a day, herb refers to any part of the plant like fruit, seed, stem, bark, flower, leaf, stigma or a root, as well as a non-woody plant. Earlier, the term “herb” was only applied to non-woody plants, including those that come from trees, shrubs and roots. These medicinal plants are also used as food, flavonoid, medicine or perfume and also in certain spiritual activities.

Herbs had been used by all cultures throughout history, but India has one of the oldest, richest and most diverse cultural living traditions associated with the use of medicinal plants. In the present scenario, the demand for herbal products is growing rapidly throughout the world and major pharmaceutical companies are currently conducting extensive research on plant materials for their

potential medicinal value. Plants have provided mankind a large variety of potent drugs to alleviate suffering from diseases in spite of spectacular advances in synthetic drugs in recent years. Some of the drugs of plant origin have still retained their importance. The use of plant- based drugs all over world is increasing, In spite of the tremendous advances made in the modern medicine there are still a large number of ailments for which suitable drugs are yet to be found. Today, there is an urgent need to develop safer drugs for the treatment of cough, skin diseases, inflammatory disorders, diabetes, liver diseases and gastrointestinal disorder. Hence there is a growing interest in the pharmacological evaluation of various plants used in Indian traditional systems of medicine.

India is a country inhabited by a large number of people having diverse ethnic group. There are over 400 different tribes and other ethnic groups residing mostly in rural areas in India. Most of them are still living in the remote forest areas and depend to a great extend on the indigenous system of medicines. The knowledge on herbal medicinal plants has been continuing for years and has been transmitted orally from generation to generation. Plants and their parts used by the different tribal and non tribal people has some or the other relevance with the plants that are found to be in use by these traditional healers residing in this remote part of India. However recently it seems that this type of knowledge on traditional medicine is vanishing from the modern society since younger generations are not interested to carry on this tradition. In India, it is reported that traditional healers use 2500 plant species and 100 species of plants that serve as regular sources of medicine.

In India, a vast pool of traditional knowledge with respect to medicinal properties of native plants in available amongst rural people. Both rural men and women have a wealth of traditional knowledge. The whole set of information is lying scattered in bits and segments (especially in rural India) without any organization. Knowledge on Herbal Medicinal Plants is the ancient herbal plant knowledge transmitted over a period of time explaining the relationship between plants and traditional people for mutual care and benefit. Moreover, women are the knowledge carries but still their knowledge is going unrecognized. During ancient times people used to rely on the local plant resources for both short term and long term treatment of different ailments. But in advance world today, interest is shifting towards Allopathy and other modern medicare options. Here, a wide spectrum of herbal biodiversity exists and plants are integrated with our cultural heritage through cultural beliefs, rituals and festivals and as specials offerings to Gods and ancestors. This role is indirectly taken up by women at large and the responsibility of transfer of traditional

knowledge from generation to generation in women's domain. The traditional knowledge of indigenous people is severely endangered as younger generation is no longer interested to acquire and transmit it further.

Health status of Indian women especially in rural area is in poor state. Women and girl child are sometimes not allowed to health centers or local dispensaries even if these are available in their village. In role of mother, daughter or wife, rural woman is also loaded with the responsibility to take care of health needs of the family. Therefore with all the limited means and resources at her disposal, she tries to their health through traditional medicinal knowledge and plant resources available in rural areas. But this forced responsibility has also helped her to acquire basic knowledge about local plants and use of different plant parts as therapeutics. With the help of self acquired traditional knowledge, she well mastered in identify the plant at right development stage of use through visual markers which sometimes are not even known to the scientific world e.g. height of plant, color of leaves and fruits etc. elderly women play a pivotal role in retaining and passing on traditional knowledge to the next generation. Women share and practiced herbal medicinal plants for both in daily diet as well as curing different ailments.

The people of Assam have good thriving knowledge on several common diseases as well as their remedial therapies with the traditional use of different parts of naturally available herbal medicinal plants like root, leaves and shoots since time immemorial. Therefore, it is the need of the hour to preserve the traditional knowledge on the use of the medicinal plants.

JUSTIFICATION

Herbal medicinal plants plays an important role in rural areas and various locally produced drugs are still being used as household remedies for different ailments. The increasing use of traditional therapies demands more scientifically sound evidence for the principles behind therapies and for effectiveness of medicines. Herbal medicine is still the main- stay of about 75–80% of the world population, mainly in the developing countries, for primary health care because of better cultural acceptability, better compatibility with the human body, and lesser side effects. Also, traditional knowledge is the most affordable and accessible method available for the treatment of various diseases. Forests represent an important resource for local inhabitants who gather and sell medicinal plants as part of their livelihood. Home medical knowledge, or knowledge of how one's

surroundings can be used to maintain and restore health, can be an important tool for health self-sufficiency in rural places as well as for the ecological conservation of important plants and natural materials

The herbal medicines are largely gaining popularity over allopathic medicine because of the following favorable reasons like rising costs of medicinal care, as herbal medicines are from natural origin, so it is free from severe side effects in several cases. And sometimes it goes to the root cause of a disease and removes it, so that the disease does not occur again. It has freedom from approaching various specialists. Herbal medicine use to cure for many obstinate diseases. It is an advantage of easy availability of drugs from natural sources.

Herbal medicinal plants have a promising future because there are about half million plants around the world, and most of them their medical activities have not investigate yet, and their medical activities could be decisive in the treatment of present or future studies.

Assam is a state rich of forests, hills which are endowed with different plants and herbs, of those most of have high medicinal properties. The traditional uses of medicinal plants in healthcare practices are providing clues to new areas of research; hence its importance is now well recognized. However, scientific knowledge or information on the uses of indigenous herbal plants for medicine is not well documented from many rural areas of Assam.

Therefore, an attempt is very urgent to explore the household remedies for the treatment of common ailments. It could provide the people of all nations especially in the Assam, with comprehensive health care. Hence, researcher was inclined to take up a most important area of research to mitigate the gap between Knowledge, attitude and practices if any and plan to bridge the gap through customized extension intervention programmes in future. For above reasons it was decided to take up a study on “Knowledge, Attitude and Practices of Rural Women in Jorhat district of Assam Regarding Herbal Medicinal Plants” with following objectives.

OBJECTIVES

1. To study the profile of the rural women.
2. To explore the knowledge of rural women regarding herbal medicinal plants.
3. To identify the attitude of rural women regarding herbal medicinal plants.

4. To find out the practices of rural women regarding selected herbal medicinal plants.
5. To explore various problems faced by rural women in practicing selected herbal medicines in their daily life.

LIMITATIONS OF THE STUDY

1. The present study was conducted in Jorhat district of Assam.
2. The study was limited to a sample of 100 rural women.
3. Sample selection was randomly.
4. Objectivity would be limited to the extent of the truthfulness and open mindedness of the respondents.

CHAPTER II

REVIEW OF LITERATURE

This chapter deals with the review of relevant literature and research studies done in the India and abroad. A brief review of work done on the subject is presented below:

2.1 Profile of rural women.
2.2 Knowledge level of rural women regarding herbal medicinal plants.
2.3 Attitude of rural women regarding herbal medicinal plants.
2.4 Existing practices of rural women regarding selected herbal medicinal plants.
2.5 Problems faced by rural women in practicing selected herbal medicines in their daily life.

2.1 Profile of rural women

Catublas (2016) found that most of the respondents (33.33%) from urban area were in between 51-60 years while from rural area (53.33%) of the respondents were from 41-50 years old. Majority of the urban respondents (76.2%) were education up to college level while maximum rural respondents (42.6%) were education up to high school level.

Wassie *et al.* (2015) reported that a total of 392 respondents, with a response rate of 97.3%, more than half (56.1%) were female in age between 18-85, 19.1 per cent were government employees, 50.54 per cent participants have family size of 3 to 5 family members. Large number of respondents (72.3%) cannot write and read and more than half of the respondents (53.1%) were married.

Mahadi *et al.* (2014) reported that majority of women (44.00%) in Bangladesh were educated. A very negligible percentage (6.00%) of women had education level above matriculation.

Riasat *et al.* (2014) found that most of the women (46.70%) of Faisalabad district belonged to the age group of 41-50 years and literate (60.00%). It was further revealed that more

than half of the respondents had regularly seen television and read newspaper to gaining knowledge.

Ananthanag *et al.* (2014) found that more than half of the respondents (51.67%) of Karnataka state were medium landholders, 38.33 per cent were education up to high school level and maximum number of respondents (65.00%) had pucca houses. The studies also revealed that majority of the respondents (66.67%) were belonged to OBC category, 95.00 per cent of the respondents were from small family and all the respondents (100%) had agriculture as their main occupation.

Billah *et al.* (2013) reported that majority of the farmers of Bangladesh were belonged to small family size (60.00%) and literate (62.00%) followed by small farmers (40.00%), marginal farmers (36.00%) and medium farmers (18.00%).

Garba *et al.* (2013) found that majority of women(38.00%) of Nigeria were married followed by age group in between 26-35 years and had formal education (51.00%).

Satyanarayana *et al.* (2010) found that majority of the respondents (68.00%) lived in nuclear type family followed by small family size (76.00%) and half of the respondents (51.00%) had membership in cooperative societies.

Navaraj (2003) found that in the study area most of the respondents both from tribal and non tribal area come under the age group of 28-42 years.

2.1 Knowledge level of rural women regarding herbal medicinal plants

Lavanya *et al.* (2017) studied on Traditional knowledge on folk medicine by rural women in Chikkanayakanahalli Taluk, Tumkur district, Karnatak and found that about 32 plant species belonging to 23 families that are used for various purposes by traditional healers.

Divya *et al.* (2017) studied on Traditional knowledge on medicinal plants among rural people in Chintamani Taluk, Karnataka, India and found that the ethno botanical information of 99 plant species curing 23 diseases belonging to 90 genera & 32 families. Most of the plants used in the treatment were herbs (45 species) & trees (38 species), rarely shrubs (16 species). And also reported that the pre-phase of the field survey, peoples' opinion were collected about traditional medicines Journal of Medicinal Plants Studies verses modern medicines. 83% of the respondents

were of the view that access to traditional herbal medicine was bad, while only 17% reported that it was good.

Catublas (2016) studied on Knowledge, attitudes and practices in the use of herbal medicine: the case of urban and rural mothers in the Philippines and found that there was significant difference in the knowledge of mothers in the use of Akapulko. This means that mothers in rural areas are more knowledgeable of Akapulko as medicine as depicted by the large percentage of urban mothers (86.70%) and also reported both urban and rural respondents knew the indication of Bayabas (Guava), parts used, and method of preparation. Urban respondents (93.30%) were more aware of the possible side effects compared to rural respondents (53.33%)

Wassie *et al.* (2015) studied on Knowledge, attitude and utilization of Traditional Medicine among the Communities of Merawi Town, Northwest Ethopia: A cross-sectional study and reported that 241 (61.5%) of the study participants were found to have good knowledge about TMs and 151 (39.5%) had poor knowledge level.

Gari *et al.* (2015) studied on Knowledge, attitude, practice, and management of traditional medicine among people of Burka Jato Kebele, West Ethiopian china, and found that in traditional herbal preparations account for 30-50% of total medicinal consumption.

Rahman (2013) studied on Exploration of Ethno botanical Knowledge of Rural Community in Bangladesh: Basis for Biodiversity Conservation and found that a total of 45 ethno medicinal plant species including herb, shrub, tree, palm, and vine distributed across 34 families were documented in the study to be used by the rural community for curing differ-entailments.

Silva *et al.* (2011) Dynamics of traditional knowledge of medicinal plants in a rural community in the Brazilian semi-arid region and found that the ethno species cited, 93% were identified; some species did not occur in the community but were rather acquired in trade or in adjacent communities and there were no significant differences between the knowledge of men in different age groups on ethno species and medical uses, showing that knowledge about medicinal plants of this gender seems to be more uniform than that among women and also found that a total of 220 therapeutic indications were cited for 231 ethno species. Of the ethno species cited, 93% were identified; some species did not occur in the community but were rather

acquired in trade or in adjacent communities. It was possible to identify 212 ethno species distributed among 158 taxa (136 identifications on the species level and 22 at the genus level).

Geissler *et al.* (2002) studied on Medicinal plants used by Luo mothers and children in Bondo district, Kenya and found that girls expand their knowledge with age and learn about remedies for infant illness; by school leaving age they have acquired knowledge of most plant remedies that their mothers know and use.

Prince *et al.* (2001) studied on Knowledge on herbal and pharmaceutical medicines among Luo school in western Kenya and found that 13 year old children already know most commonly used herbs for the treatment of common illness.

2.2 Attitude of rural women regarding herbal medicinal plants.

Negard *et al*. (2015) studied on Attitudes and use of medicinal parts during pregnancy among women at health care centers in three regions of Mali, West-Africa and found that in total only 8.00 percent of the women preferred herbal medicine to conventional medicine and also found that 43.1 % of respondents found that herbal medicine was less effective than conventional medicine.

Dragoeva *et al.* (2015) studied on a study on current status of herbal utilization in Bulgeria: part 1- Application of herbal medicines and found that the attitude toward the medicinal plants utilization could be influenced also by occupation and marital status of respondents.

Wassie *et al*. (2015) studied on Knowledge, attitude and utilization of Traditional Medicine among the Communities of Merawi Town, Northwest Ethopia reported that 70.2 per cent of participants do not agree about effectiveness of Traditional Medicines compared to modern health care service after use. Only 75 (19.1%) participants recommend using Traditional Medicine therapy for others. Among the participants, 232 (59.2%) believe Traditional Medicines are still accepted in the community and 115 (49.5%) respondents agree that the reason is cultural acceptability and 42.2% account the good outcome of Traditional Medicine after they use them and also reported that Sixty nine (17.6%) participants have previously attended education or

training about the benefits and adverse effects of traditional medicine. Majority, 354 (90.3%), of the respondents strongly felt that they want training about these issues.

Negard *et al.* (2015) studied on Attitudes and use of medicinal parts during pregnancy among women at health care centers in three regions of Mali, West-Africa and found that many women did not have any opinion whether there could be a risk associated with the use of medicinal plants during pregnancy for either the mother (17.7%) or the unborn child (23.9%).

Karmakar *et al.* (2012) studied on Prevalence, belief and awareness of preferring traditional healthcare system in urban and rural people of Noakhali district, Bangladesh and found that about 79% respondents felt comfortable to use traditional medicine because they believed that it is free from side effects and cheaper than modern medicine.

Shaheen *et al.* (2010) studied on Medicinal plants used by the folk and tribal medicinal practitioners in two villages of Khakiachora and Khasia Palli in Sylhet district, Bangladesh and found that the rural people have much faith for their treatment in Kaviraji, a treatment system practiced by folk practitioners. This might be due to the perception is low cost and less side effects of that system.

2.3 Existing practices of rural women regarding selected herbal medicinal plants.

Arain *et al.* (2017) studied on Herbal medicine use: knowledge and attitude in patients at tertiary care level in northern border region of kingdom of Saudi Arabia and found that, herbal supplementation have become famous in west as well accounting about 50% of population use.

Lavanya *et al.* (2017) studied on Traditional knowledge on folk medicine by rural women in Chikkanayakanahalli Taluk, Tumkur district, Karnatak and found that Leaves were found most frequently used part for primary health care by rural women including other various parts. Therefore, the maximum use of leaves medicinal purpose indicates either these plants are easily availability or they may have strong medicinal properties. The analysis of habits of plants documented, showed that herbs share the largest proportion with 14 species (44%) followed by trees with 11 species (34%), shrubs with 6 species (19%) and climbers with 1 species (3%).

Liza *et al.* (2016) studied on Indigenous knowledge on the exploitation and utilization of medicinal plants by the Thengal Kachari tribe of Jorhat district, Assam, North-east India and found that among the Thengal Kachari tribe people various plant parts, such as roots, shoots, leaves, flowers and seeds of more than 11 different species, stem of 16 species, rhizome of 01 species, fruits of 05 species and entire plant of 01 species, are used for the treatment of different human ailments and usually through oral administration.

Nergard *et al.* (2015) studied on Attitudes and use of medicinal plants during pregnancy among women at health care centers in three regions of Mali, West-Africa and found that in total, 79.9 % had used medicinal plants during pregnancy. Only 17 women (8.5 %) had received a recommendation from a traditional practitioner (TP) and also found that, the most commonly used medicinal plants were *Lippia chevalieri* (55.5 %), *Combretum micranthum* (39.7 %), *Parkia biglobosa* (12.0 %) and *Vepris heterophylla* (8.1 %). The most common reasons for use were for well-being (37.7 %), symptoms of malaria (37.1 %) and "increased salt-elimination" (to reduce edema) (19.2 %). For treatment of symptoms of malaria and urinary tract infections during pregnancy, the women's choices of medicinal plants agreed with those previously reported from interviews with TPs. Almost 30 % believed that medicinal plants had no adverse effects for the mother.

Wassie *et al.* (2015) studied on Knowledge, attitude and utilization of Traditional Medicine among the Communities of Merawi Town, Northwest Ethopia reported that About 278 (70.9%) participants had used different types of herbal medicines either by themselves or visited traditional healer at least once in their lifetime for treatment. Of those respondents, 171 (64%) had used only herbal medication of different type as mode of treatment for various illnesses. Furthermore, out of herbal medication users, 98.8% has used herbal medication for 6 months. Only 22 (5.6%) respondents had history of concurrent use of modern medicines along with Traditional Medicines. Aspirin, Paracetamol, Amoxicillin, and antacids are the common estrus used with Traditional Medicines.

Nergard *et al.* (2015) Attitudes and use of medicinal plants during pregnancy among women at health care centers in three regions of Mali, West-Africa and found that although the women in our study did have modern health facilities available to them, still 80 % chose to use

herbal medicine for their ailments. The women use of medicinal plants was most commonly initiated after recommendations from friends and family (36.2 %) or on the woman's own initiative (32.2 %) and also found that only one of the women would ask a medical doctor, only three a midwife, while 38 women would never ask for advice even though they had information needs.

Wassie *et al.* (2015) studied on Knowledge, attitude and utilization of Traditional Medicine among the Communities of Merawi Town, Northwest Ethopia reported that Eighty-nine (22.7%) respondents experienced adverse effects in their family members due to traditional medicine therapy. The reported adverse effects include bleeding, abortion, visual loss, tetanus, jaundice, fistula, gastritis, psychosis, exacerbation of illness, paralysis, and even death.

Rahman (2013) studied on Exploration of Ethno botanical Knowledge of Rural Community in Bangladesh: Basis for Biodiversity Conservation and he reveals that the survey revealed that rural people used various parts of the plants as medicine and consumed after macerating, squeezing, grinding, blending, soaking, or boiling, and some are taken raw and also reported that these are generally used to treat fever, coughs, cuts and wounds, cold ailments, toothache, hair loss, dandruff, skin diseases, joint pain, stomach problem, dysentery and diarrhea. Twelve species (26.67%) are used against dysentery (five trees, two herbs, shrubs and vine, and one palm species). Cold ailments, cough, and fever are treated with six species (13.33%); constipation, cuts and wounds, hair fall and color, lethargy to food, and skin diseases are treated with five species (11.11%) each. More than four species (8.89%) are used for treating common conditions of diabetes, diarrhea, gastric pain, indigestion, jaundice, stomach trouble, and weakness. In some cases, a mixture of several species is also used for treating one disease.

Titilayo *et al.* (2009) studied on Attitude and use of herbal medicines among pregnant women in Nigeria and they found that more than two-third of respondents, 405 (67.5%), had used herbal medicines in the crude from that was prepared by respondents or as packaged herbal or dietary/ nutritional supplements.

Geissler *et al.* (2000) studied on the significant of earth eating. Social and cultural aspects of geophagy among Luo children, Africa and they found that among Luo social life children's

illness is taken care of within the family and treatments often employ self prepared herbal remedies.

2.4 Problems faced by rural women in practicing selected herbal medicines in their daily life.

Sonaye *et al.* (2017) studied on Opportunities and challenges in recent trends in herbal medicines and they found that risk with self dosing, complexity in standardizations and not able to cure rapid sickness and accidents are three disadvantages of herbal drugs.

Nergard *et al.* (2015) studied on Attitudes and use of medicinal plants during pregnancy among women at health care centers in three regions of Mali, West-Africa and they found that among those who were negative to the use of medicinal plants, they pinpointed that herbal drugs are not pure or clean; they give more adverse effects and have no clearly defined dosages.

UNESCO (2013) the report of on the International Bioethics Committee on Traditional Medicine Systems and their ethical implications. SHS/EGC/IBC-19/12/3 Rev. Paris, 8 February, it was received that, the common misconception that natural products are not toxic and are devoid of adverse effects often lead to improper use and unrestrained intake and this has also resulted in severe poisoning and acute health problems. This misconception is not limited to the developing countries. It also exists in highly developed countries, where the general public often resorts to “natural” products without any proper awareness or information on the associated risks, particularly in the event of excessive or chronic use.

Kamboj (2012) studied on Analytical Evaluation of Herbal Drugs and he reveals that Adulteration, faulty collection and imperfect preparation are problems in practicing herbal medicinal plants.

Raynor *et al.* (2011) studied on Buyer behaviors whether the information provided with herbal products available over the counter enable safe use and they found that in line with this, the Traditional Herbal Medicines Registration Scheme, which is a “simplified registration scheme,” was introduced in the UK. In this scheme, herbal medicinal products are required to meet specific standards of safety and quality, agree upon indications for use based on

their traditional use and also provide information in a leaflet to promote safe use of the product by the purchaser.

Kasilo *et al.* (2011) studied on Decade of African traditional medicine, and they found that the safety of traditional and herbal medicines has therefore become a major concern to both national health authorities and the general public.

CHAPTER III

MATERIALS AND METHODS

This chapter deals with the various methodological steps adopted in carrying out the present investigation under the following heads:

3.1 Locale of research study

3.2 Sample and sampling procedure

3.2.1 Selection of sub-division

3.2.2 Selection of blocks

3.2.3 Selection of villages

3.2.4 Selection of respondents

3.3 Selection of variables and instruments used

3.4 Operational definition of the variables

3.5 Construction of research tool for data collection

3.6 Pre-testing of research tool

3.7 Methods of data collection

3.8 Analysis of data

3.9 Research design

3.1 Locale of research study

The present study was carried out in the purposively selected Jorhat district of Assam.

3.2 Sample and sampling procedure

For selection of representative samples of the present study a random sampling design was followed.

3.2.1 Selection of sub-divisions

Jorhat and Titabor sub-divisions were randomly selected for the present study where majority of the extension projects were conducted under College of Community Science and College of Agriculture, AAU, Jorhat.

3.2.2 Selection of blocks

The Jorhat sub-division comprises of five rural development blocks, namely Jorhat Development Block (Baghchung), North East Development Block (Dhekorgarah), East Jorhat Development Block (Selenghat), Kaliapani Development Block and Central Development Block (Chipahikhola) where as Titabor sub-division comprises of only one block i.e. Titabor Development Block. Thus North East Development Block (Dhekorgarah) from Jorhat sub-division and Titabor Development Block from Titabor sub-division were randomly selected for the present study.

3.2.3 Selection of villages

A list of villages from each of the selected blocks was collected from Block Development Officers. From the list, a total of four villages, two villages from each block were randomly selected for the present study.

3.2.4 Selection of the respondents

For the selection of respondents, a list of total household was prepared from each of the selected villages with the help of village leader. From the list 25 numbers of married women were selected from each village by using simple random sampling method. Thus altogether, 100 numbers of respondents were selected for the present study.

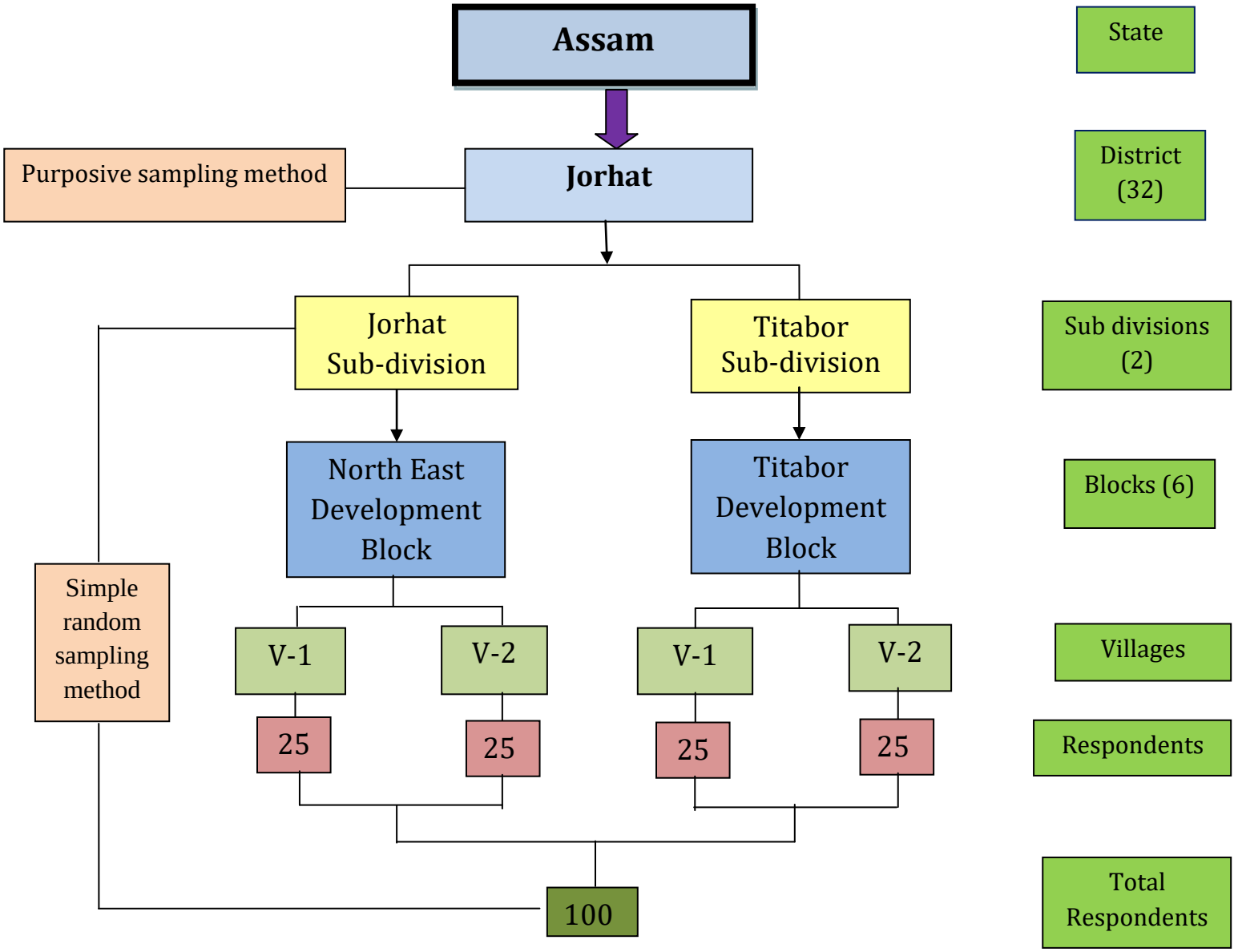
Assam
State
Purposive sampling method
Jorhat
District (32)
Jorhat Sub-division
Titabor Sub-division
Sub divisions (2)
North East Development Block
Titabor Development Block
Blocks (6)
Simple random sampling method
V-1
V-2
V-1
V-2
Villages
25
25
25
25
Respondents
100
Total Respondents

FIG. 3.2. SAMPLING DESIGN

3.3 Selection of variables and instruments used

The independent variables included in the present study were selected on the basis of related literature reviewed and discussion with experts. For measurements of the variables in quantitative form, structured interview schedule was prepared for the purpose of the study.

The list of variables along with the instruments used for measurement is presented in Table 3.1.

Table 3.1. List of selected variables and instruments used

Category	Variables	Instruments used

a) Independent variable	**Personal characteristics**	
	1. Age	**Chronological age of the respondent**
	Socio-economic characteristics	
	2. Marital status	**Trivedi and Pareek Scale, 1963**
	3. Caste	
	4. Occupation of the head of the family	
	5. Family structure	
	a. Type of family	
	b. Size of family	
	6. Education	
	7. Organizational	
	8. Land holding	
	9. Type of house	
	10. Material possession	
	a. Household assets	
	b. Farm assets	
	11. Mass media exposure	**Structured schedule**
	12. Extension contact	
	13. Training programme attended	
b) Dependent variable	1. Knowledge	**Structured schedule**
	2. Attitude	
	3. Practice	
	4. Problems	

3.4 Operational definition of the variables

3.4.1 Independent variables and their measurement

3.4.1.1 Age

It is operationally defined as the chronological age of the respondents rounded up to the nearest year at the time of investigation and was determined by asking question.

For analysis, the respondents were caterorized into the following three groups:

Category	Range (Years)	Score
Young	18-31	1
Lower middle	32-45	2
Upper middle	46-59	3

3.4.1.2 Marital status

It is operationally defined as the marital position of the respondents at the time of investigation. On the basis of marital status respondents were categorized as follows:

Category	Code
Married	1
Widow	2
Divorcee	3
Separated	4

3.4.1.3 Caste

It is operationally defined as the social status or position of the respondents that is fixed by traditional occupation and religious sanctions. On the basis of the caste, the respondents were categorized into four categories as below:

Category	Score
Schedule Caste (SC)/Schedule Tribe (ST)	1
Backward Caste (OBC)/More Other Backward Caste(MOBC)	2
General Caste	3

3.4.1.4 Occupation of the head of the family

It is operationally defined as the main income source of head of the family. For analysis of the data following categorization and coding was done.

Category	Score
Farming	1
Daily wage earner	2
Business	3
Service	4
Others	5

3.4.1.5 Family structure

Family structure comprised of type and size of family in the present study.

3.4.1.5.1 Type of family

It refers to whether the family is nuclear, joint or extended.

A family is considered as nuclear when it consists of husband, wife and unmarried children.

A joint family consists of a married family living together with in-laws.

An extended family consists of a married family living together with in-laws, parents and grandparents. Categorization was made as follows:

Category	Score
Nuclear	1
Joint	2
Extended	3

3.4.1.5.2 Size of family

The number of family members indicates the size of the family and it was measured as follows:

A family consisting of up to 4 members was considered as a small family, with 5-8 members as medium family and a family with more than 8 members was considered as a large family. Categorization and coding is given below:

Category	Score
Small (Up to 4)	1
Medium (5-8)	2
Large (above 8)	3

3.4.1.6 Education

It is operationally defined as the academic qualification acquired by the respondent in formal schooling. On the basis of education, the respondents were categorized and scores were assigned. It is shown below:

Category	Score

Illiterate	0
Can read & write	1
Up to primary	2
Up to middle school	3
HSLC	4
HS	5
Graduate and above	6

3.4.1.7 Organizational membership

It is operationally defined as the degree with which the respondents were involved in various organizations namely SHGs, NGOs, Farmer's Club, Bandhan Bank etc. The categorization was made as follows:

Category	**Score**
No membership	0
Member of one organization	1
Member of more than one organization	2
Office bearer of one organization	3
Office bearer of more than one organization	4

3.4.1.8 Land holding

It is operationally defined as the lands which were operated by the family for production of both food crops and cash crops and available lands surrounded of their houses. The classification was done as follows:

Category	**Score**

Marginal (below 7.5 bighas)	1
Small (7.5-15 bighas)	2
Semi medium (15-30 bighas)	3
Medium (30-75 bighas)	4
Large (above 75 bighas)	5

3.4.1.9 Type of house

It is operationally defined as the place or shelter where people live with their family. In the present study, type of house of the respondents was categorized as:

Category	Score
Katcha	1
Mixed	2
Pucca	3

3.4.1.10 Material Possession

It is operationally defined as the material possession by the respondents namely household assets such as biogas, water tap or hand pump, modern household or furniture, smokeless chullah, kerosene stove, gas stove, pressure cooker, electricity, refrigerator, mixer grinder, washing machine, two wheeler, four wheeler and farm assets such as tractor, power tiller, hand tools, pump set, sprayer, thresher, winnower, animals (cow/goat/bullock) at the time of investigation. It was measured as given below:

Category	Score
Yes	1
No	0

Further based on the obtained score, it is classified into low, medium and high using mean ± SD.

Category	Score Range
Material Possession	
Low	Below (Mean-SD)
Medium	Mean-SD to Mean+SD
High	Above (Mean+SD)

3.4.1.11 Mass media exposure

It is operationally defined as the frequency of using different media such as Newspaper, Magazine, Radio and Television. The respondents were categorized in to following three groups:

Category	Score
Regularly	2
Sometimes	1
Never	0

3.4.1.12 Extension Contact

It is operationally defined as a frequency of contact with the different extension functionaries of Non Government Organization (NGO), Village Level Extension worker (VLEW named as AEA), Agriculture Extension Officer or Assam Agricultural University and other financial institution like NABARD, Bandhan Bank on their own area for getting information. Frequency of extension contact was recorded on three points:

Category	Score
Regularly	2

Sometimes	1
Never	0

3.4.1.13 Training programme attended

It is operationally defined as the trainings attended by a respondent regarding different agriculture related training programmes. The respondents were categorized in to following three groups:

Category	Score
Regularly	2
Sometimes	1
Never	0

3.4.2 Dependent Variables and their measurements

3.4.2.1 Knowledge of rural women regarding herbal medicinal plant

The Oxford dictionary meaning of knowledge is those information and skills which are acquired through experience or education.

In the present study knowledge is operationally defined as those information possessed by the respondents regarding importance and use of selected common herbal medicinal plants available in the study areas.

Knowledge was measured in this study by using structured schedule developed by the researcher. The schedule was consists of 35 knowledge statements. These statements are based on importance of 30 numbers of selected herbal medicinal plants. It was measured as below:

Category	Score
Yes	2
No	1

On the basis of the score obtained, the knowledge of the respondents was ranked and divided into three categories as follows:

Category	Score Range
Low	Below (Mean-SD)
Medium	Mean-SD to Mean+SD
High	Above (Mean+SD)

3.4.2.2 Attitude of rural women regarding herbal medicinal plants

The Oxford dictionary meaning of attitude is that a way of thinking or feeling about someone or something.

In this study, attitude is operationally defined as the mental state of the respondents towards the utility of selected herbal medicinal plants in the care of common ailments.

Attitude of rural women was measured in the study by using structured schedule developed by the researcher. The schedule consists of 15 attitude statements. It was measured as below:

Category	Score
Highly Favorable	3
Favorable	2
Unfavorable	1

On the basis of the score obtained, the attitude level of the respondents was divided into three categories as follows:

Category	Score

Unfavorable	Below (Mean-SD)
Favorable	Mean-SD to Mean+SD
Highly Favorable	Above (Mean+SD)

3.4.2.3 Practices of rural women regarding herbal medicinal plats

The dictionary meaning of practice is that the actual application or use of an idea, belief, or method, rather than the theories.

In the present study practice is operationally defined as the skill of identifying and using the herbal medicines for curing the common ailments by the respondents.

In this study practice table was prepared based on the actual performance of a respondent in application or use of 30 numbers of herbal medicinal plants. Headings are namely parts use, purpose of use and form of use of the selected herbal medicinal plants.

3.4.2.4 Problems faced by rural women in practicing selected herbal medicinal plants

The dictionary meaning of problem is any difficulty during practicing something.

Problem is operationally defined in the present study is the actual difficulties of a respondent in use of herbal medicinal plants in daily life and also for curing different ailments.

Problem was measured in this study by using structured schedule developed by the researcher. The schedule was consists of 28 statements. These statements are based on different problems in practicing herbal medicinal plants in their daily life. It was measured as follow:

Category	**Score**
Yes	2
No	1

3.4.2.5 Operational definition of key words use in the study

Herbal Medicinal Plants

Herbal medicinal plants are those herbal plants which have scientifically validated medicinal importance and used in curing common ailments. In this study 30 numbers of commonly available herbal medicinal plants in the research area were selected.

3.5 Construction of research tool for data collection

Based on the objectives formulated for the present study, a structured interview schedule was prepared after going through related literature and publication of AICRP Home Science, 2003. The interview schedule consisted of five different parts.

The first part of the schedule dealt with the profile of the respondents.

The second part of the schedule was constructed to explore the knowledge of rural women regarding herbal medicinal plants.

The third part of the schedule was constructed to identify the attitude of rural women regarding herbal medicinal plants.

The fourth part of the schedule was constructed to find out the existing practices of herbal medicinal plants in their daily life.

The fifth part of the schedule was constructed to explore various problems faced by rural women in practicing herbal medicinal plants.

3.6 Pre-testing of the research tool

The prepared research tool for this study was pre-tested by taking a sample of 30 respondents in non sampling area. Based on the experiences gained and information obtained necessary modifications were made in the tool and then it was finalized for data collection.

3.7 Procedure of data collection

The data were collected from the respondents with the help of structured interview schedule through personal interview method. All the respondents were interviewed by the investigator herself during February to March, 2018. Special care was taken to clarify the questions to the respondents.

3.8 Analysis of data

The collected data were coded, tabulated and analyzed in accordance with the objectives of the study. The following statistical techniques and tests were used for analyzing the data on different aspect of the study.

1. Percentage
2. Mean
3. Standard deviation

1. **Percentage:** It is a fraction expressed with 100 as its denominator. It is used to any set of data for comparison. Percentage was calculated with the following formula:

$$\text{Percentage} = \frac{\text{Number of score obtained}}{\text{Total number of respondents}} \times 100$$

2. **Mean:** It is the arithmetic average and was used to measure the type of the observation as a whole. Formula used for calculating mean:

   Mean=

   Where, Xi= total scores obtained by respondent

   n = frequency of variable

3. **Standard deviation:** to find out the extent of variability shown by the variables. That is the dispersion of the variables around the mean, standard deviation (S.D) was used. Formula used for calculating standard deviation:

   Standard deviation=

Where, Xi = Total scores obtained by respondent

= Mean of variable

n = Frequency of variable

3.9 Research Design

Exploratory survey research design was adopted for the present study.

CHAPTER IV

FINDINGS AND DISCUSSION

The data collected from the rural women were systematically arranged, coded and analyzed keeping in mind and objectives of the present study. The findings of the study and relevant discussion are presented in this chapter under the following headings:

4.1 Background profile of the rural women

4.1.1 Personal and Socio-economic characteristics of the rural women

4.2 Knowledge level of the rural women regarding herbal medicinal plants

4.3 Attitude of the rural women regarding herbal medicinal plants

4.4 Existing practices of herbal medicinal plants among the rural women

4.5 Problems faced by the rural women in practicing herbal medicinal plants

4.1 Background profile of the rural women

4.1.1 Personal and socio-economic characteristics of the rural women

Personal and socio-economic characteristics of the respondents were studied with the following variables.

4.1.1.1 Age

Age is an important personal characteristic of the rural women which affects their knowledge regarding herbal medicinal plants. Moreover, maturity and knowledge achieved through experiences varies according to the age level of the rural women.

Table 4.1 reveals that majority (46.00%) of the respondents in the study area belonged to lower middle age group i.e. within the age group of 32-45 years followed by 32.00 percent of the respondents who belonged to younger age group i.e. 18-31 years. Further 22.00 percent of the

respondent belonged to upper middle age group (46-59 years). This findings is in line with *Luqman et. al.* (2013), *Billah et. al.* (2013) and *Adisa and Akinkunmi* (2012).

The findings indicated that majority of the respondents in lower middle age group (32-45 years). This might be due to the fact that lower middle age group people are more active and highly interested to gather new information to support their family.

Table 4.1 Distribution of respondents according to age (years)

N=100

Category	***Range (years)***	**Percentage (%)**
Young	18-31	32
Lower Middle	32-45	46
Upper Middle	46-59	22

4.1.1.2 Marital Status

Table 4.2 shows that majority of the respondents (98.00%) were married whereas only 2.00 percent were widow. Similar findings reported by Dash (2015), Verma (2015) and Patel and Chauhan (2015).

It can be assumed that a married woman is totally responsible for nutrition and health care of the family members. So they were inclined to take up knowledge on herbal medicinal plants to support their family.

Table 4.2 Distribution of respondents according to marital status

N=100

Category	**(Percentage) %**
Married	98
Widow	2

4.1.1.3 Caste

From Table 4.3 it is evident that half of the total respondents i.e. 50.00 percent belonged to Scheduled Tribe (ST) category followed by Other Backward Category (OBC) and General Category i.e. 30.00 percent and 20.00 percent respectively.

Table 4.3 Distribution of respondents according to Caste

N=100

Category	Percentage (%)
ST	50
OBC	30
General	20

4.1.1.4 Occupation of the head of the family

Table 4.4 reveals that maximum number of respondents (70.00%) had farming as their main occupation. Further the data showed that 18.00 percent were in business and 7.00 percent has service while only 5.00 were daily wage earner as their main occupation. Similar findings reported by Rais et.al. (2013) and Adepoju et.al. (2013).

From the findings it can be perceived that most of our population are in rural areas and depends on farming.

Table 4.4 Distribution of respondents according to occupation of the head of the family

N=100

Category	Percentage (%)
Farming	70
Daily wage earner	5
Bussiness	18

Service	7

4.1.1.6 Family structure

a. Type of family

Table 4.5 reveals that maximum number of the respondents (68.00%) belonged to nuclear family and 32.00 percent of the respondents were from joint family. Similar Findings were reported by Shetter et.al. (2005) and Satyanarayan and Jagadeeswary (2010), where majority of the respondents lived in nuclear type of family.

This situation may be attributed to the fact that due to the disintegration of the family system in the rural areas where the majority of the families were found nuclear.

Table 4.5 Distribution of respondent according to type of family

N=100

Category	Percentage (%)
Nuclear	68
Joint	32

b. Size of family

Family size refers to the total number of persons dwelling together within a family. Table 4.6 reveals that more than half of the respondents (60.00%) belonged to small family size (up to 4 members) and 40.00 percent respondents belongs to medium family size (5-8 members) respectively.

It might be due to increase awareness on family planning through communication media as well as family planning measures adopted by the rural families helps to reduce the family size. The findings is in line with the findings of Satyanarayan and Jagadeeswary (2010) who reveals that large number (76.00%) of respondent belonged to small family size category. Oyeyinka et.al. (2011) also found that 48.20 percent of respondents have family size of 1-4 members.

Table 4.6 Distribution of the respondents according to size of the family

N=100

Category	Range	Percentage (%)
Small	Up to 4 members	60
Medium	5-8 members	40

4.1.1.7 Education

Education is one of the most important tools for bringing about changes in the knowledge of an individual. The individual with higher education acquires more knowledge and are able to accept the new ideas and can also offer solution to certain problems more quickly.

The data presented in the Table 4.7 reveals that majority (70.00%) of the respondent had up to HSLC, followed by 24.00 percent had up to can read and write and 6.00 percent respondents had up to graduation. Similar findings were reported by Deka et.al. (2013), where he found that 36 percent of the respondents had education up to middle school. The findings further indicate that there is lot of work to do done in improving the literacy level of the respondents in the study area.

Table 4.7 Distribution of respondents according to education

N=100

Category	Percentage (%)
Can read and write	24
Up to HSLC	70
Up to graduation	6

4.1.1.8 Organizational membership

Membership in any registered village organization enables farmers to become empowered. They were also allowed to take active part in decision making of both government

and non government activities. Further they were getting ample scope to participate in various training programmes organized by extension professionals.

Table 4.8 shows that 42.00 percent of the respondents had general member of one organization, 4.00 percent respondents had general member of more than one organization, 4.00 percent respondents had office bearer of one organization, while 50.00 percent of the respondents did not have membership in any organization, which indicated that women had not yet organized into groups and leaving a great scope for the government organizations to make them aware about need and importance of group formation to avail the benefits of different government programmes.

Table 4.8 Distribution of respondents according to organizational membership

N=100

Category	Percentage (%)
No membership	50
Member of one organization	42
Member of more than one organization	4
Office bearer of one organization	4

4.1.1.9 Land holding

Land is one of the most important physical factors that are essential for any kind of agricultural and allied activities to generate income. Moreover the size of the land holding of a family is reflects the socio economic status of the family.

The distribution of respondents according to size of land holding is presented in Table 4.9 It is evident that highest percent of respondents (92.00%) had marginal farmer that is less than 7.5 bighas of land, followed by 8.00 percent of the respondents had small farmers (7.5-15 bighas).

This might be due to disintegration of joint families which leads to division of the land among the family members. This finding is similar to Rais et.al. (2013), where 56.70 percent had small land holding.

Table 4.9 Distribution of respondents according to land holding

N=100

Category	Percentage (%)
Marginal	92
Small	8

4.1.1.10 Type of house

Table 4.10 shows that 52.00 percent of the respondents had katcha house followed by 34.00 percent had mixed house and 14.00% had pucca house.

The above findings showed that maximum number of the respondents had katcha type of house which indicated that their economic status were not good enough. It might be due to the fact that majority were having marginal land holding family and farming as their main occupation.

Table 4.10 Distribution of respondents according to type of house

N=100

Category	Percentage (%)
Katcha	52
Mixed	34
Pucca	14

4.1.1.11 Material possession

Material possession is an important characteristic of socio economic status of the respondents. It gives social status to an individual or family in the society.

a. Household assets

It refers to the materials and tools used in home to carry out different activities of a family.

According to obtained score in household assets the respondents were categorized as low medium and high. The data is presented in the Fig. 4.1, the data reveals that more than half of the respondents (58.00%) were in medium category followed by low 22.00 percent and 20.00 percent were in high category. It was found that out of all household assets only water tap

and hand pump were possessed by more number of respondents and some respondents possessed plastic furniture as modern furniture. It indicated that the income of the respondent was not satisfactory, they are not economically sound and they do not have the capacity to purchase the assets which are essential for a comfortable living of the families.

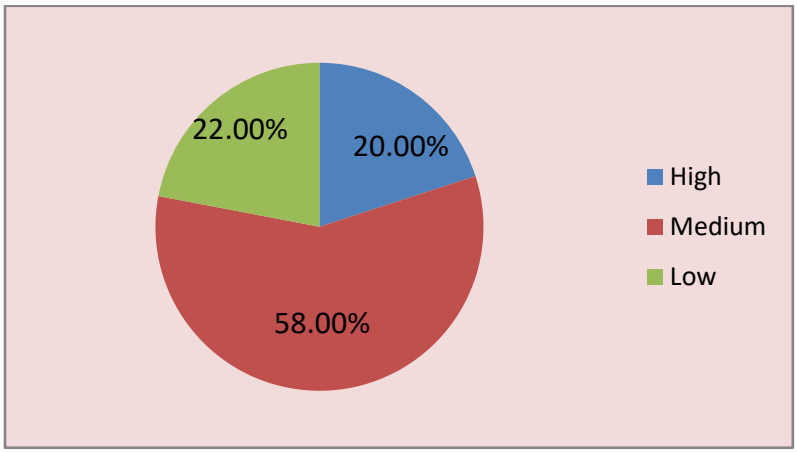

Fig.4.1 Distribution of respondents according to household assets

b. Farm assets

It refers to the materials possessed and kept by rural families for proper operation of farm activities.

According to obtained score in possession of farm assets, the respondents were categorized as low, medium and high. The data is presented in Fig. 4.2 the data revealed that majority of (90.00%) of the respondents were in medium level followed by low and high with 6.00 percent and 4.00 percent respectively. It also reveals that the farm assets such as tractor, pump set, sprayer and thresher were possessed by only a small numbers of respondents. Only hand tools and animals were possessed by only a small numbers of respondents. Only hand tools and animals were possessed by majority of the respondents, hence they were in the medium category.

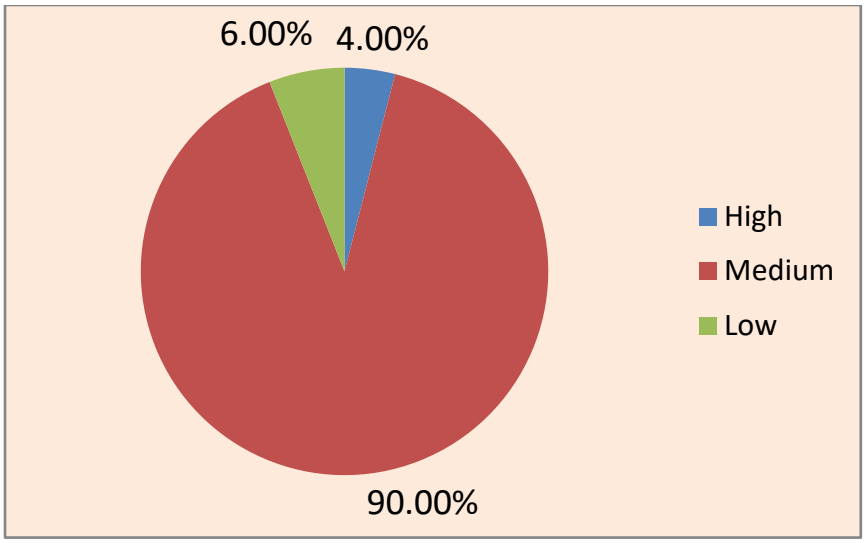

Fig. 4.2 Distribution of respondents according to the farm assets

4.1.1.12 Mass media exposure

For improving communication, to upgrade knowledge and skill, to strengthen their capacity to contact and medicate with external world, access of farmers mass media exposure is very high.

Fig. 4.3 shows that highest percentage of the respondents (54.00%) had regularly watched television followed by 40.00 percent of respondents sometimes listened to radio and 18.00 percent respondents had sometimes read the magazines and only 2.00 percent of respondents regularly read newspaper.

The data reflected that television is more commonly used item rather than traditional print media. It might be due to the fact that rural women are engaged in household activities as well as farm activities also. So they have no time to read print media. Mostly they used Television. Through the use of electronic media they can obtain the latest updates and save their time and money in collecting necessary information. Further, they expressed that they used television as a medium of entertainment and recreation.

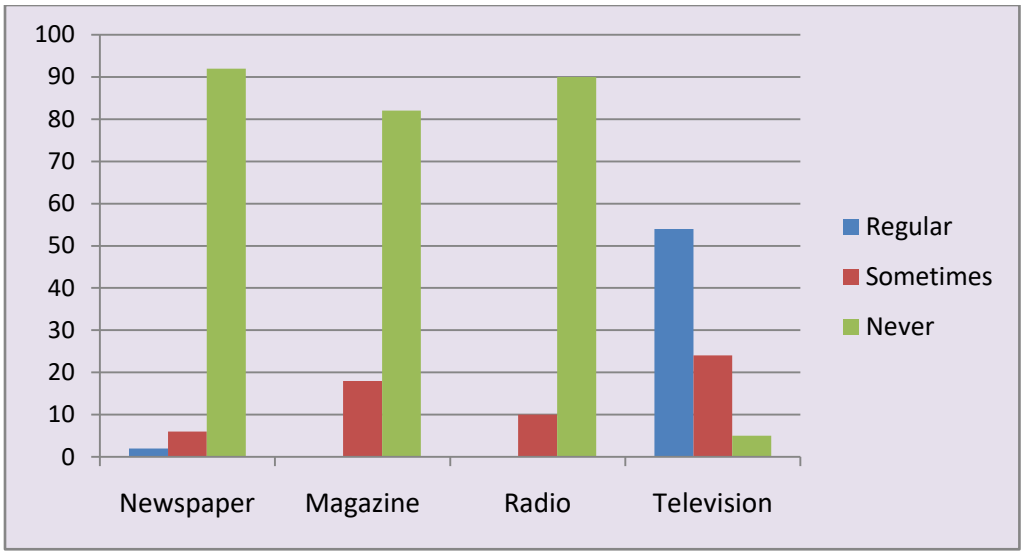

Fig 4.3 Distribution of respondents according to mass media exposure

4.1.1.13 Extension Contact

Fig. 4.4 indicates that majority of the respondents i.e. 96.00 percent had regularly contact with Non Government Organization (NGO) followed by 88.00 percent of respondents had regular contact with Village Level Extension Worker (VLEW) and very less (4.00%) number of the respondents had sometimes contact with financial institution like NABARD and Bandhan Bank and very negligible (2.00%) percentage of respondents had contact with Extension officer. It might be due to the fact that respondents were not interested to taking loan from any financial institution. NABARD and Bandhan Bank have mainly provided loan or financial help to the poor people. Another reason maybe that the lack of regular visit of extension functionaries of NABARD, Bandhan Bank etc in that areas. So extension contact with the rural people had very poor. On the other hand respondent had very strong linkage or extension contact with the NGO and VLEW. NGO's are closely related with the government programme and schemes and conveying information and extension support in Public Private Partnership (PPP) mode to changing the present extension scenario. This type of data will be helpful in future to organized training programme in that area with the help of NGOs.

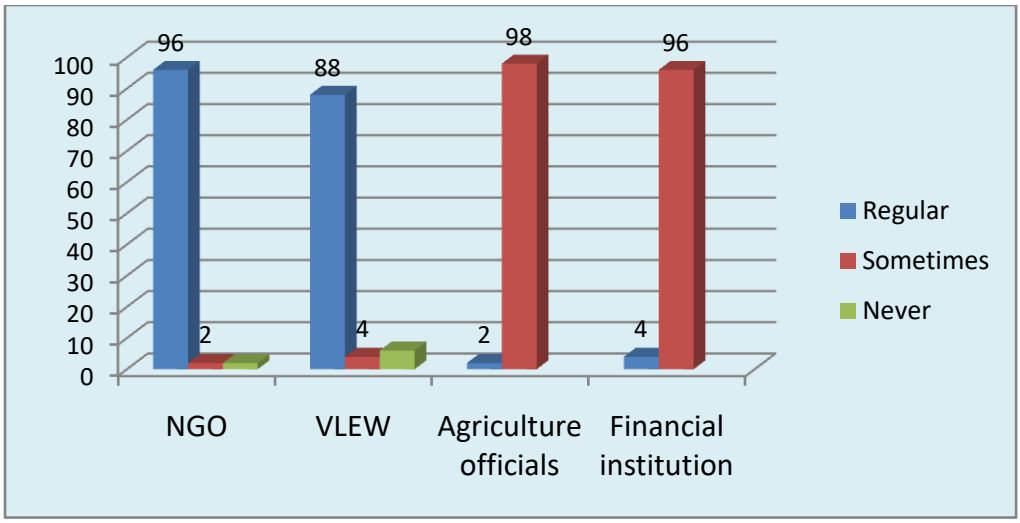

Fig. 4.4 Distribution of respondents according to extension contact

4.1.1.14 Training programme attended

The data on training programme attended on different agriculture related programme is presented in Fig. 4.5. It shows that 60.00 percent respondents had regularly attended training programme followed by 25.00 percent of the respondents had sometimes attended in the different agriculture related training programme followed by 15.00 and percent respondents never attended any training programme.

15.00 percent of respondents never attended the training programme; it might be due to the fact that due to lack of suitable time and overload of work of the respondents do not permit to attend training programme regularly.

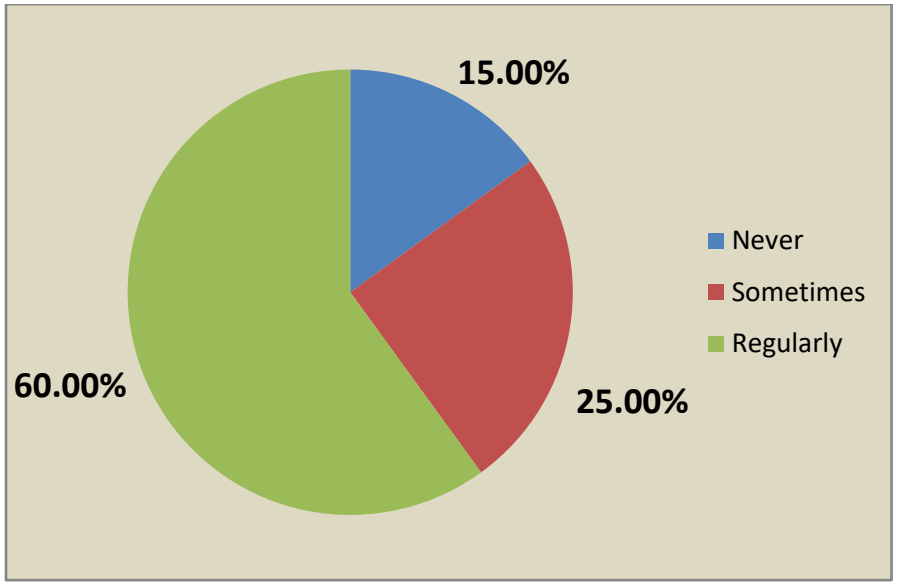

Fig. 4.5 Distribution of respondents according to the training programme attended

4.1.1.15 Socio Economic status

Socio-economic status of the women is a prerequisite for any economic development programme. More encouragement and support needs to be provided to the women to improve their socio economic status. It was classified as low, medium and high after quantifying the factors as well as calculating standard deviation and mean.

The data on socio-economic status of the respondent is presented in Fig. 4.6. It shows that majority (67.00%) of the respondents were from medium socio-economic status followed by 18.00 percent respondents were from high socio economic status and only 15.00 percent of the respondents were low socio economic status. This may be inferred as the 15.00 percent respondents belonged to low socio economic status as they were marginal land holder (below 7.5 bigha) with mixed housing condition and had farming as main occupation of the family.

These findings are in contrast to the findings of Kumar et.al. (2015) are found that most of the respondents were middle aged, having graduation with business as their main occupation, medium land holding and majority of them having experience of 3-6 years with the family size of less than 6 members, having received training of 1-2, medium in social participation, economic orientation, market orientation, innovativeness, risk orientation and achievement motivation. These factors shows the influence of the socio-economic characteristics in gaining higher farmers' income.

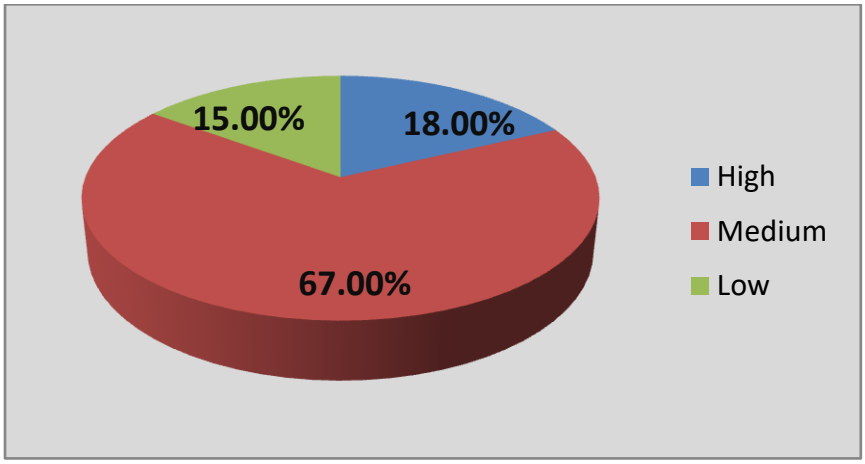

FIG 4.6. DISTRIBUTION OF RESPONDENTS ACCORDING TO SOCIO ECONOMIC STATUS

4.2 Knowledge of rural women regarding Herbal Medicinal Plants

Knowledge is one of the important components of behaviour and plays an important part in convert or overt behaviour of an individual. A knowledgeable person is capable of clear and balanced thinking. The results of existing knowledge of the respondents regarding herbal medicinal plants are presented in Table 4.11. Knowledge was assessed in importance and use of Herbal medicinal plants.

Data shows that majority (68.00%) of the respondents had medium level of knowledge followed by 17.00 percent of the respondents had high level of knowledge and only 15.00 percent had low level of knowledge. It is assumed that rural women might require more information regarding herbal medicinal plants. And also it might be due to the fact that respondents had less exposure to attain the training on Herbal medicinal plants. This finding is contrast with the findings of *M. Rahim Ashfaque et. al.* (2013).

Table 4.11 Distribution of respondents according to knowledge level regarding herbal medicinal plants

N=100

Category	Percentage (%)
High	17
Medium	68
Low	15

Table 4.12 Distribution of respondents according to responded percentage of the knowledge statements regarding herbal medicinal plants

N=100

Sl. No.	Statements	Percentage (%)	
		Yes	No
1.	Herbal medicinal plants are to be included it in our daily diet.	100	0

2.	Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder etc.	100	0
3.	Holy basil (tulsi) is good for cough relief.	100	0
4.	Thyme leaved gratiola (brahmi) is good medicine for brain.	100	0
5.	Trigonella foenum graecum (methi) is very bad for pain and swelling.	100	0
6.	Mint (podina) can stop vomiting.	100	0
7.	Indian Patchouli (Hukloti) helps to heeling.	100	0
8.	Colocasia (kosu) is a rich source of iron.	100	0
9.	Curry leaves (norohinho) can increase hunger.	100	0
10.	Henna (Jetuka) is beneficial for hair and skin.	97	3
11.	Assam is very rich in herbal medicinal plants.	94	6
12.	Ginger (adda) cures pain.	90	10
13.	Herbal medicine has contributed to primary health care.	82	18
14.	Gurlic (nohoru) can prevent bacterial infection.	71	29
15.	Henna (Jetuka) is beneficial for hair and skin.	70	30
16.	Durun is very bad for low blood pressure.	67	33
17.	Root of Shame Plant (Nilaji Bon) is use for curing piles.	57	43
18.	Herbal medicinal plants cannot be use by pregnant women.	57	43
19.	Herbal medicinal plants have less side affect.	54	46
20.	Acid plant (dupor tenga) helps to cure urinal infections.	47	53
21.	Tinospora cardifolia (Manimuni) cures fever.	45	55
22.	Black nightshade (Bhekuri tita) helps to relieves pain.	43	57
23.	Thyme leaved gratiola (Brahmi) leaves is bad for pain and blood.	43	57
24.	Herbal medicinal plants are not very expensive.	42	58
25.	High doses of herbal medicines are dangerous to health.	42	58
26.	Amaranth (Moricha) is good for blood.	39	61
27.	Aloevera (saalkuori) helps to kill worms.	36	64
28.	Aloevera (saalkuori) helps in purifies the blood.	35	65
29.	Periwinkle leaf (nayantora) is good for diabetic patient.	33	67
30.	Phyllanthus niruri (mati amlokhi) cures viral infections.	28	72
31.	Prickly amaranth (Hati khutura) is beneficial in skin care.	27	67
32.	Black mastered (kola horiyoh) helps to reduce fever.	21	79
33.	(Sirota) is good for stomach trouble.	12	88
34.	Onion (ponoru) helps to relieve irritation.	10	90

35.	Eclipta prostrata **(**Bhringraj**) is good for tooth ache.**	8	92

The data in the Table 4.12 reveals that all the respondents have full knowledge on some statement. Those are "Herbal medicinal plants are to be included it in our daily diet", "Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder etc", "Holy basil (tulsi) is good for cough relief", "Thyme leaved gratiola (brahmi) is good medicine for brain", "Trigonella foenum graecum (methi) is very bad for pain and swelling", "Mint (podina) can stop vomiting", "Indian Patchouli (Hukloti) helps to heeling", "Colocasia (kosu) is a rich source of iron" and "Curry leaves (norohinho) can increase hunger". Second and third highest percentage of the respondents have knowledge on "Henna (Jetuka) is beneficial for hair and skin" and "Assam is very rich in herbal medicinal plants" i.e. 97.00 percent and 94.00 percent respectively.

4.2.1 Ranking of knowledge statements according to their mean score

Table 4.13 Ranking of knowledge statements according to mean score.

Sl. No.	Statements	Mean Score	Rank
1.	Herbal medicinal plants can be included it in our daily diet.	2	I
2.	Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder etc.	2	I
3.	Holy basil (tulsi) is good for cough relief.	2	I
4.	Thyme leaved gratiola (brahmi) is good medicine for brain.	2	I
5.	Trigonella foenum graecum (methi) is very bad for pain and swelling.	2	I
6.	Mint (podina) can stop vomiting.	2	I
7.	Indian Patchouli (Hukloti) helps to heeling.	2	I
8.	Colocasia (kosu) is a rich source of iron.	2	I
9.	Curry leaves (norohinho) can increase hunger.	2	I
10.	Henna (Jetuka) is beneficial for hair and skin.	1.94	II
11.	Assam is very rich in herbal medicinal plants.	1.9	III
12.	Ginger (adda) cures pain.	1.82	IV
13.	Herbal medicine has contributed to primary health care.	1.71	V
14.	Gurlic (nohoru) can prevent bacterial infection.	1.71	V

15.	Henna (Jetuka) is beneficial for hair and skin.	1.7	VI
16.	Thumba (Durun) is very bad for low blood pressure.	1.7	VI
17.	Root of Shame Plant (Nilaji Bon) is use for curing piles.	1.67	VII
18.	Herbal medicinal plants cannot be use by pregnant women.	1.57	VIII
19.	Herbal medicinal plants have less side affect.	1.57	VIII
20.	Asid plant (dupor tenga) helps to cure urinal infections.	1.54	IX
21.	Tinospora cardifolia (Manimuni) cures fever.	1.43	X
22.	Black nightshade (bhekuri tita) helps to relieves pain.	1.43	X
23.	Thyme leaved gratiola (brahmi) leaves is bad for pain and blood.	1.42	XI
24.	Herbal medicinal plants are not very expensive.	1.42	XI
25.	High doses of herbal medicines are dangerous to health.	1.4	XII
26.	Amaranth (Moricha) is good for blood.	1.39	XIII
27.	Aloevera (Saalkuori) helps to kill worms.	1.36	XIV
28.	Aloevera (Saalkuori) helps in purifies the blood.	1.35	XV
29.	Periwinkle leaf (Nayantora) is good for diabetic patient.	1.33	XVI
30.	Phyllanthus niruri (Mati amlokhi) cures viral infections.	1.3	XVII
31.	Prickly amaranth (Hati khutura) is beneficial in skin care.	1.28	XVIII
32.	Black mastered (Kola horiyoh) helps to reduce fever.	1.28	XVIII
33.	(Sirota) is good for stomach trouble.	1.21	XIX
34.	Onion (ponoru) helps to relieve irritation.	1.21	XIX
35.	Eclipta prostrata **(**Bhringraj**) is good for tooth ache.**	1.12	XX

The data in the table 4.13 reveals that mean score of 2 are ranked as I. the statements are “Herbal medicinal plants should be included it in our daily diet”, “Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder etc”, “Holy basil (tulsi) is good for cough relief. Thyme leaved gratiola (brahmi) is good medicine for brain”, “Trigonella foenum graecum (methi) is very bad for pain and swelling”, “Mint (podina) can stop vomiting”, “Indian Patchouli (Hukloti) helps to heeling”, “Colocasia (kosu) is a rich source of iron”, and “Curry leaves (Norohinho) can increase hunger”. “Henna (Jetuka) is beneficial for hair and skin” is ranked as II with 1.94 mean score “Assam is

very rich in herbal medicinal plants" is ranked as III with 1.9 mean score. Last rank i.e. XX "Eclipta prostrata **(**Bhringraj**) is good for tooth ache**" with 1.12 mean score.

It can be concluded that extension training programme could be planned consider the priorities of the lack of the knowledge in the study area.

4.3 Attitude of the rural women regarding herbal medicinal plants

The data on attitude of the rural women regarding herbal medicinal plants is mentioned in Table 4.14. Attitude was assessed in 25 statement includes both positive and negative statements related to herbal medicinal plants. Data shows that majority (74.00%) of the respondent favorable attitude level followed by 14.00 percent had unfavorable attitude and 12.00 percent had highly favorable attitude regarding herbal medicinal plants.

It might be due to the fact that the reason of favorable attitude towards use of herbal medicinal plants is safe, cheap and well tolerated remedies of different ailments.

Table 4.14 Distribution of respondents according to attitude regarding herbal medicinal plants

N=100

Category	Percentage (%)
Highly Favorable	12
Favorable	74
Unfavorable	14

4.3.1 Ranking of attitude statements according to their mean score

The data in the Table 4.15 reveals that highest mean score observed in the attitude statement were "Herbal medicinal plants are good for people's health and well-being", "We can use herbal medicinal plants as medicine", "Herbal medicines are effective", "Herbal medicines are cheaper that allopathic medicines", "Herbal medicinal plants useful for curing different diseases" and "Herbal medicinal plants can contribute essential nutrients to our body" with mean score of 3. The second and third highest mean score i.e. 2.92 and 2.86 secured statements are

"Herbal medicinal plants are commonly available" and "Herbal medicines tend to be less expensive than other medicines" respectively. As the respondents had medium level of knowledge regarding herbal medicinal plants, they were usually aware of using different herbal medicinal plants in their daily diet for better health condition.

Table 4.15 Ranking of attitude statements according to mean score.

Sl. No.	Statements	Mean Score	Rank
1.	Herbal medicinal plants are good for people's health and well-being.	3	I
2.	We can use herbal medicinal plants as medicine.	3	I
3.	Herbal medicines are effective.	3	I
4.	Herbal medicines are cheaper that allopathic medicines.	3	I
5.	Herbal medicinal plants useful for curing different diseases.	3	I
6.	Herbal medicinal plants can contribute essential nutrients to our body.	3	I
7.	Herbal medicinal plants are commonly available.	2.92	II
8.	Herbal medicines tend to be less expensive than other medicines.	2.86	III
9.	Herbal medicines are safer than other medicines.	2.83	IV
10.	Herbal medicinal plants have the power of purifying blood.	2.82	V
11.	Herbal medicinal plants should be recognized by the government.	2.81	VI
12.	Herbal medicinal treatments are affordable.	2.75	VII
13.	Now a day, people are more interested about herbal products.	2.74	VIII
14.	Herbal medicinal plants are only appropriate for treating minor conditions such as a cold or stomachache.	2.68	IX
15.	Herbal treatment can cure major illness.	2.54	X
16.	Herbal medicines are more effective than other medicine.	2.38	XI
17.	Herbal medicinal plants act as an antidote.	2.3	XII
18.	Children do not want to have medicinal plants as their food.	2.29	XIII
19.	The tastes of herbal medicines are very good.	2.25	XIV
20.	Herbal products not be used to treat serious health conditions like heart diseases.	2.23	XV
21.	People prefer herbal medicines than conventional Western medicine.	2.15	XVI

22.	It is not dangerous to take herbal medicine with other prescription drugs.	2.02	XVII
23.	Pregnant women should include herbal medicinal plants in their daily diet.	2.01	XVIII
24.	The smells of herbal medicinal plants are bad.	1.96	XIX
25.	Herbal medicinal plants are harmful for children.	1.06	XX

4.4 Existing practices of herbal medicinal plants by rural women.

The data on existing practices of herbal medicinal plants by rural women is presented in Table 4.16. It is consist of distribution of respondents according to parts use, purpose of use and form of use of the selected 30 numbers of herbal medicinal plants. The data in the table reveals that different parts (leaf, fruit, stem, root and whole plant) of herbal medicinal plants were use for curing various ailments (cough, stomach trouble, skin care, depression, urinary trouble, increase appetite, hair care, diabetes, increase memory, cuts and wounds) in various forms (paste, extract, chutney or curry).

Majority of the respondent (98.00%) were use leaf of nine numbers of herbal medicinal plants namely Holy Basil, Curry leaf, Mint, Chinese flower, Indian Sorrel, Heart leaf, Acid Plant, Henna and Amaranth. Maximum percent of respondents (88.00%) use fruit of Black pepper. 76.00 percent of respondents use stem of Amaranth and 98.00 percent of respondents use root of three herbal medicinal plants i.e. Turmeric, Garlic and Onion. 98.00 percent of respondents use the whole plant of four numbers of herbal medicinal plants i.e. Asiatic Pennywort, Theme leaved gratiola, Prickly amaranth and green amaranth.

Highest percentage of respondents (98%) use Holy Basil for cough relief followed by Black peper (88.00%) and Sweet flag (76.00%). 98.00 percent of respondents use Curry leaf, Asiatic pennywort, Chinese flower and Heart leaf for curing stomach trouble. 98.00 percent of respondents used Mint followed by Turmeric (90.00%) and Aloevera 84.00 percent for skin care. 20percent of the respondents use Turmeric leaf followed by Black pepper 12.00 percent use for relief from Depression. 98.00 percent of respondents use Curry leaf, Mint and Heart leaf for increase appetite. For hair care 98.00 percent of respondents use Henna followed by Onion (75.00%). 56.00 percent of respondents use Amaranth for curing Diabetes followed by Rosy Periwinkle (31.00%). For increase memory 98.00 percent of respondents use Thyme leaved

gratiola. 78.00 percent of respondents use Indian Patchouli for cuts and wounds followed by Turmeric (48.00%).

Majority of the respondents (98.00%) use Henna as paste form followed by Sweet flag (70.00%). 98.00 percent of respondents use Tulsi and Acid plant as extract form. 98.00 percent of respondents use Curry leaf, Mint, Chinese flower, Indian sorrel, Heart leaf, Thyme leaved gratiola, Garlic, Onion, Prickly amaranth, Green amaranth and Amaranth as chutney or curry form.

The data reveals that maximum number of respondents practiced these herbal medicinal plants as Chutney or Curry form. It might be due to the fact that the rural people were have the habit of practicing different herbal medicinal plants as food items. Because herbal medicinal plants are easily available in their areas. On the other it is cost effective and relatively lesser side effect. Due to their medicinal value, use of these herbs in their daily diet and as medicine helps to cure common ailments and develop healthy and disease free lives.

4.5 Problems faced by the rural women in practicing selected herbal medicinal plants

The data in the Table 4.17 reveals that “Lack of knowledge on identification of herbal medicinal plant” and “Doses intake of herbal medicinal plants by the patient is not standardized” is the two problems faced by highest number (90.00%) of respondents in practicing different herbal medicinal plants. Followed by 86.00 percent of respondents faced

"Due to the smell and taste, children have not interest to take herbal medicinal plants" is a problem and 84.00 percent of respondents face "Storing of herbal medicines is not well documented" is a problem for them. It might be due to the fact that due to lack of knowledge on herbal medicinal plants and documentation of standardized doses of herbal medicines. Improper storing procedure and facilities of herbal medicine creates problems of respondent in using herbal medicinal plants for curing ailments.

Table 4.17. Distribution of respondents according to the problems faced by the respondents in practicing different herbal medicinal plants

N=100

Sl. No.	Statements	Percentage (%)	
		Yes	No
1.	Lack of knowledge on identification of herbal medicinal plant.	90	10
2.	Doses intake of herbal medicinal plants by the patient is not standardized.	90	10
3.	Due to the smell and taste, children have not interest to take herbal medicinal plants.	86	14
4.	Storing of herbal medicines is not well documented.	84	16
5.	Inefficient processing techniques leading to low yields and poor quality products.	83	17
6.	Lack of knowledge about alternative preparation of herbal medicinal plants..	78	22
7.	Lack of interest of the family members to have herbal medicinal plants in their diet.	71	29
8.	There is no available literature on nutritive value of analysis on herbal medicinal plants.	62	38
9.	Due to some previous experience people stop to use herbal medicinal plants.	46	54
10.	Lack of trained personal and equipment for preparation of herbal medicine.	36	63

CHAPTER V

SUMMARY AND CONCLUSION

Herbal medicinal plants may be defined as those plants that are commonly used in treating and preventing different ailments. These are either “wild plant species” or “Domesticated plants species” those that have arisen through human actions such as selection or breeding and depend on management for their existence. These herbal products are today are the symbol of safety in contrast to the synthetic drugs, that are regarded as unsafe to human being and environment. Although herbs had been priced for their medicinal, flavouring and aromatic qualities for centuries, the synthetic products of the modern age surpassed their importance, for a while. However, the blind dependence on synthetics is over and people are returning to the naturals with hope of safety and security. It’s time to promote them globally.

Herbal medicinal plants are respective and widely used in the rural areas of Assam. Allopathic services are also used but may not be convenient to access and is also expensive.

Keeping this in view it was decided to undertake the research work on “knowledge, attitude and practice of rural women in Jorhat District of Assam regarding herbal medicinal plants” with the following objectives:

6. To study the profile of the rural women.
7. To explore the knowledge of rural women regarding herbal medicinal plants.
8. To identify the attitude of rural women regarding herbal medicinal plants.
9. To find out the practices of rural women regarding selected herbal medicinal plants.
10. To explore various problems faced by rural women in practicing selected herbal medicines in their daily life.

- **Methodology**

The study was carried out in Jorhat District of Assam. A simple random sampling design was followed for selection of two blocks namely Dhekorgarah and Titabor from respective subdivision i.e. Jorhat and Titabor. 100 numbers of female respondents were selected from 4

villages of the two blocks. The data were collected through personal interview method with the help of the interview schedule developed for the purpose according to objective of the study.

The salient findings of the study are summarized below:

a) Existing socio-economic status of rural women

The findings revealed that majority (46.00%) of the respondents belonged to middle age group i.e. 32-45 years and married (98.00%). Half of the respondents (50.00%) belonged to ST category and 70.00 percent respondents had farming as their main occupation. 60.00 percent respondents belonged to small size family with 68.00 percent of the respondents were nuclear family. Majority 70.00 percent had education up to HSLC level and half of the respondents (50.00%) were no membership in any organization. 92.00 percent respondents were marginal land holding farmers and 52.00 percent had katcha type of house. Majority 58.00 percent and 90.00 percent of the respondents had medium level of household and farm assets respectively. More than half of the respondents (54.00%) had regularly watched Television and 96.00 percent of respondents had regular contact with NGOs and VLEWs. 60.00 percent respondents attended training programme regularly on different areas. Further, it revealed that majority (67.00%) of the respondents were from medium socio-economic status.

b) Knowledge of rural women regarding herbal medicinal plants.

Findings revealed that majority (68.00%) of the respondents had medium level of knowledge regarding herbal medicinal plants. Followed by 17.00 percent of the respondents had high knowledge and only 15.00 percent had low level of knowledge regarding herbal medicinal plants.

c) Attitude of rural women regarding herbal medicinal plants.

Findings revealed that majority (74.00%) of the respondent favorable attitude level followed by 14.00 percent had unfavorable attitude and 12.00 percent had highly favorable attitude regarding herbal medicinal plants.

d) Practice of rural women regarding herbal medicinal plants.

Findings revealed that majority of the respondents practiced selected 30 herbs for medicinal purpose. They had use leaf, fruit, stem, root of the plant and the whole plant in the form of paste, extract, Chutney/curry for curing cough, stomach trouble, skin care, depression, urinary problems, increase appetite, hair care, diabetes, increase memory and cuts wounds.

Mostly the respondents use Holy Basil, Curry Leaf, Heart Leaf, Mint, Henna, Indian Sorrel etc. for primary care of ailments.

e) Problems of rural women in practicing herbal medicinal plants.

Findings revealed that “Lack of knowledge on identification of herbal medicinal plant” and “Doses intake of herbal medicinal plants by the patient is not standardized” is the two problems faced by highest number (90.00%) of respondents in practicing different herbal medicinal plants. Followed by 86.00 percent of respondents faced “Due to the smell and taste, children have not interest to take herbal medicinal plants” is a problem and 84.00 percent of respondents face “Storing of herbal medicines is not well documented” is a problem for them.

CONCLUSION

As our lifestyle is now getting techno-savvy, we are moving away from nature. While we cannot escape from nature because we are part of nature. As herbs are natural products they are free from side effects, they are comparatively safe, eco-friendly and locally available. Traditionally there are lots of herbs used for the ailments related to different seasons. There is a need to promote them to save the human lives.

These herbal products are today are the symbol of safety in contrast to the synthetic drugs, that are regarded as unsafe to human being and environment. Although herbs had been priced for their medicinal, flavouring and aromatic qualities for centuries, the synthetic products of the modern age surpassed their importance, for a while. However, the blind dependence on synthetics is over and people are returning to the naturals with hope of safety and security. It’s time to promote them globally.

RECOMMENDATIONS

1. Awareness camp should be organize on identification of Herbal Medicinal plants.
2. Initiative should be take for standardization, Certification and uses of herbal medicine by the health department of government and health organization for therapeutic use of herbal medicinal plants.
3. “Growing herbal plants” can be listed as one of the important enterprise for economic empowerment of Self Help Group (SHG).
4. Training on dissemination of appropriate agricultural production techniques on herbal medicine should be organized for the technological empowerment of rural women.

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DIFFERENT TYPES OF HERBAL MEDICINAL PLANTS

HOLY BASIL

ALOEVERA

CURRY LEAF

ASIATIC PENNYWORT

MINT

CHINESE FLOWER

TURMERIC

INDIAN SORREL

HEART LEAF

THYME LEAVED GRATIOLA

ACID PLANT

INDIAN PATCHOULI

COLOCASIA

BLACK NIGHTSHADE

ROSY PERIWINKLE

GARLIC

CORIANDER

THUMBA

ONION

GINGER

STONE BREAKER

HENNA

SWEET FLAG

CHIRETTA

BLACK PEPPER

SHAME PLANT

ECLIPTA PROSTRATE

PRICKLY AMARANTH

GREEN AMARANTH

AMARANTH

APPENDIX I

(PART-I)

KNOWLEDGE, ATTITUDE AND PRACTICES OF RURAL WOMEN IN JORHAT DISTRICT OF ASSAM REGARDING HERBAL MEDICINAL PLANTS

INTERVIEW SCHEDULE

Respondent code: **Contact No.:**

Name of the respondent :

Village :

Block :

Personal profile

1. **Age:**
2. **Marital status:**

Unmarried	Married	Widow	Divorcee	Separated	Others

Socio Economic Profile

3. **Caste:**

SC/ST	OBC/MOBC	General	Others

4. **Occupation of the head of the family:**

Farming	Daily wage earner	Business	Service	Others

5. **Family structure:**

Type of family	Nuclear	Joint	Extended
Size of family	Small (Up to 4 members)	Medium (5-8 members)	Large (Above 8 members)

6. **Education:**

Illiterate	Can read & write	Up to Primary	Up to Middle School	HSLC	Higher Secondary	Graduate & above

7. **Organizational membership:**

Member	Yes		No
	One organization	More than one organization	
Member			
Office bearer			

8. **Land holding:**

Marginal (below 7.5 bighas)	Small (7.5-15 bighas)	Semi medium (15-30 bighas)	Medium (30-75 bighas)	Large (above 75 bighas)

9. **Type of house:**

Katcha	Mixed	Pucca

10. Material possession:

a) Household assets	**Yes**	**No**
Biogas plant		
Water tap/ Hand pump		
Electricity (Household and Farm)		
Modern household/furniture		
Smokeless chullah		
Kerosene stove		
Gas stove		
Pressure cooker		
Refrigerator		
Mixer grinder		
Washing machine		
Two wheeler		
Four wheeler		
b) Farm assets	**Yes**	**No**
Tractor		
Power tiller		
Hand tools		
Pump set		
Sprayer		
Thresher		

Winnower		
Animals (Cow/goat/bullock etc.)		
Any other		

11. Mass media exposure

Items	Regularly	Sometimes	Never
Newspaper			
Magazines			
Radio			
Television			

12. Extension contact

Frequency of contact	Regularly	Sometimes	Never
i. NGO			
ii. VLEW (renamed as AEA)			
iii. Agriculture extension officer/ Assam Agricultural University			
iv. Any other financial institution			

13. Training programme attended

Regular	Sometimes	Never

(PART-II)

Knowledge of the rural women regarding herbal medicinal plants

Sl. No.	Statements	Yes	No
1.	Herbal medicinal plants are to be included in our daily diet.		
2.	Herbal medicinal plants can be used in different forms such as juice, paste, solid, liquid, semi liquid, ointment, powder etc.		
3.	Holy basil (tulsi) is good for cough relief.		
4.	Thyme leaved gratiola (brahmi) is good medicine for brain.		
5.	Trigonella foenum graecum (methi) is very bad for pain and swelling.		
6.	Mint (podina) can stop vomiting.		
7.	Indian Patchouli (Hukloti) helps to heeling.		
8.	Colocasia (kosu) is a rich source of iron.		
9.	Curry leaves (noroxinho) can increase hunger.		
10.	Henna (Jetuka) is beneficial for hair and skin.		
11.	Assam is very rich in herbal medicinal plants.		
12.	Ginger (adda) cures pain.		
13.	Herbal medicine has contributed to primary health care.		
14.	Garlic (nohoru) can prevent bacterial infection.		
15.	Henna (Jetuka) is beneficial for hair and skin.		
16.	Thumba (Durun) is very bad for low blood pressure.		
17.	Root of Shame Plant (Nilaji Bon) is use for curing piles.		
18.	Herbal medicinal plants cannot be used by pregnant women.		
19.	Herbal medicinal plants have less side affect.		
20.	Acid plant (dupor tenga) helps to cure urinal infections.		
21.	Asiatic Pennywort (Manimuni) cures fever.		
22.	Black nightshade (Bhekuri tita) helps to relieves pain.		
23.	Thyme leaved gratiola (Brahmi) leaves is bad for pain and blood.		
24.	Herbal medicinal plants are not very expensive.		
25.	High doses of herbal medicines are dangerous to health.		
26.	Amaranth (Moricha) is good for blood.		
27.	Aloevera (saalkuori) helps to kill worms.		
28.	Aloevera (saalkuori) helps in purifies the blood.		

29.	Rosy Periwinkle leaf (nayantora) is good for diabetic patient.		
30.	Stone Breaker (mati amlokhi) cures viral infections.		
31.	Prickly amaranth (Hati khutura) is beneficial in skin care.		
32.	Turmeric leaf (Halodhi paat) helps to reduce depression.		
33.	Chiretta (Sirota) is good for stomach trouble.		
34.	Onion (ponoru) helps to relieve irritation.		
35.	Eclipta prostrata **(**Bhringraj**) is good for tooth ache.**		

(PART-III)
Attitude of rural women regarding herbal medicinal plants

Sl. No.	Statements	Highly Favourable	Favorable	Unfavourable
1.	Herbal medicinal plants are good for people's health and well-being.			
2.	We can use herbal medicinal plants as medicine.			
3.	Herbal medicines are effective.			
4.	Herbal medicines are cheaper that allopathic medicines.			
5.	Herbal medicinal plants useful for curing different diseases.			
6.	Herbal medicinal plants can contribute essential nutrients to our body.			
7.	Herbal medicinal plants are commonly available.			
8.	Herbal medicines tend to be less expensive than other medicines.			
9.	Herbal medicines are safer than other medicines.			
10.	Herbal medicinal plants have the power of purifying blood.			

11.	Herbal medicinal plants should be recognized by the government.			
12.	Herbal medicinal treatments are affordable.			

(PART-IV)
Existing practices of herbal medicinal plants among rural women

Sl. No.	Local name	English name	Scientific name	Parts use	Purpose of use	Form of Use
1.	Tulsi	Holy basil	Ocimum tenuiflorum			
2.	Saalkuori	Aloevera	Aloevera			
3.	Noroxinho	Curry leaf	Murraya koenigii			
4.	Manimuni	Asiatic Pennywort	Centella asiatica			
5.	Podina	Mint	Mentha arvensis			
6.	Bhedailota	Chinese flower	**Paederia foetida**			
7.	Halodhi	Turmeric	Curcuma longa			
8.	Tengesi	Indian sorrel	Oxalis Corniculata Linn			
9.	Mosondori	Heart leaf	Houttuynia cordata Thunb			
10.	Brahmi	Thyme leaved gratiola	Bacopa monnieri			
11.	Dupor tenga	Sprout leaf plant or Acid plant	Bryophyllum pinnatum			
12.	Hukloti	Indian Patchouli	Pogostemon Heyneanus			

13.	Kosu	**Colocasia**	Colocasia esculenta			
14.	Bhekur Tita	Black nightshade	Solanum nigrum			
15.	Noyontora	Rosy Periwinkle	Catharanthus roseus			
16.	Nohoru	Garlic	**Allium sativum**			
17.	Dhaniya	Coriander	Coriandrum sativum			
18.	Durun	Thumba	Leucus aspera			
19.	Ponoru	**Onion**	**Allium cepa**			
20.	Adda	**Ginger**	Zingiber officinale			
21.	Mati Amlokhi / Bhui Amlokhi	Stone breaker	**Phyllanthus amarus**			
22.	Jetuka	Henna	Lawsonia inermis			
23.	Boch	Sweet flag	**Acorus calamus**			
24.	Sirota	Chiretta	Andrographis paniculata			
25.	Jaluk	Black Pepper	Piper nigrum			
26.	Nilaji bon/ Lajuki lota	Shame plant	Mimosa pudica			
27.	Bhringraj	Eclipta prostrata	Trailing eclipta			
28.	Kata Khutura / Hati Khutura	Prickly Amaranth / Spiny Amaranth	Amaranthus spinosus			
29.	Khutora	Green amaranth	Amaranthus viridis			

30.	Moricha	Amaranth	Amaranthus caudatus			

(PART-V)

Explore various problems faced by the rural women in practicing herbal medicinal plants

Sl. No.	Statements	Yes	No
1.	Lack of knowledge on identification of herbal medicinal plant.		
2.	Doses intake of herbal medicinal plants by the patient is not standardized.		
3.	Due to the smell and taste, children have not interest to take herbal medicinal plants.		
4.	Storing of herbal medicines is not well documented.		
5.	Inefficient processing techniques leading to low yields and poor quality products.		
6.	Lack of trained personal and equipment.		
7.	Lack of interest of the family members to have herbal medicinal plants in their diet.		
8.	There is no available literature on nutritive value of analysis on herbal medicinal plants.		
9.	Due to some previous experience people stop to use herbal medicinal plants.		
10.	Lack of access to latest technological and market information.		
11.	Do not have knowledge about ayurvedic doctor who prescribe herbal medicines.		
12.	Lack of research on the development of high yielding varieties, domestication etc.		
13.	Poor quality control procedures.		
14.	Lack of knowledge about alternative preparation of herbal medicinal plants.		

15.	Lack of facilities to fabricate equipment locally.		
16.	Preparation of herbal medicine is time consuming.		
17.	Cultivation of herbal medicinal plant demands more care.		
18.	Lack of current good manufacturing practices.		
19.	Poor agriculture and propagation method.		
20.	Sometimes some traditional believes does not allowing to use.		
21.	Plantation process of herbal medicinal plant is complex.		
22.	Not encourage by the family members to cultivate herbal medicinal plants at home.		
23.	Preparation needs complex technology.		
24.	Lack of space for cultivation of herbal medicinal plants.		

APPENDIX II

Selected villages for the present study

Sl. No.	Block	Villages
1.	North East Development Block (Dhekorgarah)	1. Mojiabheti 2. Naamdeuri

2.	Titabor Development Block	1. Orrongiyal 2. Ujoni Negheri

APPENDIX III

Selected herbal medicinal plants for the present study

Sl. No.	Local name	English name	Scientific name
1.	Tulsi	Holy basil	Ocimum tenuiflorum
2.	Saalkuori	Aloevera	Aloevera
3.	Noroxinho	Curry leaf	Murraya koenigii
4.	Manimuni	Asiatic pennywort	Centella asiatica
5.	Podina	Mint	Mentha arvensis
6.	Bhedailota	Chinese flower	**Paederia foetida**
7.	Halodhi	Turmeric	Curcuma longa
8.	Tengesi	Indian sorrel	Oxalis Corniculata Linn
9.	Mosondori	Heart leaf	Houttuynia cordata Thunb
10.	Brahmi	Thyme leaved gratiola	Bacopa monnieri
11.	Dupor tenga	Sprout leaf plant or Acid plant	Bryophyllum pinnatum
12.	Hukloti	Indian Patchouli	Pogostemon Heyneanus
13.	Kosu	**Colocasia**	Colocasia esculenta
14.	Bhekur Tita	Black nightshade	Solanum nigrum
15.	Noyontora	Rosy Periwinkle	Catharanthus roseus
16.	Nohoru	Garlic	**Allium sativum**
17.	Dhaniya	Coriander	Coriandrum sativum
18.	Durun	Thumba	Leucus aspera
19.	Ponoru	**Onion**	**Allium cepa**
20.	Adda	**Ginger**	Zingiber officinale
21.	Mati Amlokhi / Bhui Amlokhi	Stone breaker	**Phyllanthus amarus**
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23.	Boch	Sweet flag	**Acorus calamus**

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