INTRODUCTION

Wound healing has got high priority among body functions. From earliest time the healing of wound has been the central problem in surgical practice. It is a major concern of clinician because wound healing and tissue regeneration play a vital role in the life and survival of living beings. A surgeon must attempt to provide the injured tissue, the best possible environment. Despite tremendous advancement, an effective wound management continues to be a challenge to the clinicians (Singh and Singh, 1993).

The current concept of wound healing has been advanced through the development of new and better techniques for the study of corrective processes. A rational treatment of wounds should benefit the healing process as well as prevent additional damage and infection. There remains a constant search for agent that should be beneficial to the healing wound and at the same time control the septic process effectively. Topical medication of wound with antiseptics is of limited value when used for control of infection because of the mechanism of action of antiseptics. To date there are no chemicals in this classification that do not have some adverse effects on immature cellular process, when used in concentration
sufficient to control the septic process (Heinz, 1976). As per WHO, the twentieth century wonder drugs "antibiotics" will not remain useful and become almost ineffective by the year 2020. In these circumstances one has to think over the alternative therapeutic approaches to control the infections (Garg and Chauhan, 2003; Chauhan, 2005)

Since time immemorial human race has sought various means to facilitate wound healing with the goal of speeding the healing process, preventing infection, maximizing wound strength, minimizing scarring and preventing disability. Cow urine can be a very effective healing modality. Sometimes when all else fails, urine therapy will turn a person around.

Indian cow breeds are unique and distinct species, both in their appearance and characteristics. Cow is the backbone of Indian culture and rural economy and sustains our life, represent cattle wealth and biodiversity. The Ayurveda, the ancient Indian system of medicines has detail mentions of importance of cow’s milk, curd, ghee and urine in the treatment of various human ailments. Cow urine has many beneficial properties particularly in the areas of agriculture and therapeutics. It has been observed during scientific research that the urine of Indian cows is highly effective and interestingly almost nil or few medicinal properties are present
in the urine of cross bred, exotic cows, buffaloes etc. (Dhama et al., 2006).

Cow urine has been described in ‘Sushrita Samhita’ Ashtanga Sangraha’ to be the most effective substance/secretion of animal origin with innumerable therapeutic values. Taken in measured quantities, cow urine or gau-mutra has a unique place in Ayurveda and is suggested for improving general health. Exploring its antimicrobial activities, it is being used to produce a whole range of Ayurvedic drugs. Cow urine therapy has a long history. Some recognized it as water of life in Vedas, a sacred Hindu writing, which is said to be the oldest books in Asia, and it is also mentioned as “Amrita” (beverages of immortality), the nectar of God.

The urine of cow contains all beneficial elements in it. Hence it is natural and universal medicine that fulfils the deficiency of elements and reduces the increased elements in the body. It is the quality of urine, which helps in curing even the most incurable diseases. Cow urine contains 24 types of salts and the medicines made from cow urine are used to control several diseases. Cow urine contains water 95%, urea 2.5%, minerals, salts, hormones, and enzyme-2.5%. It also contains iron, sulphur, phosphate, salts, carbonic acid, amino acid, phosphorus, potash, nitrogen, ammonia,
enzymes, cytokines and lactose etc. (Bhadauria, 2002). Cytokines and amino acids might play a role in immune enhancement. Gomutra singularly has got all such chemical properties, potentialities and constituents that are capable of removing all the ill effects, imbalances in body (Bartnett, 1988; Chauhan et al., 2001; Chauhan, 2003). Urine kills number of drug resistant bacteria and viruses and cures some untreatable diseases like cancers.

Most of the medicines are made by distilling urine and collecting vapours. The ark (distillate) is useful for many diseases. A number of ailments could be treated and this therapy is being used even for dreaded diseases like cancer, AIDS, diabetes and skin problems. It is antibacterial, antifungal, antiviral, antineoplastics, anticonvulsive, antispasmodic and non-toxic. Improvements have been shown or reported with those suffering from flu, sinusitis, allergies, rheumatoid arthritis, enteritis, tetanus, hepatitis, gastric ulcer etc. The urine of cow is bitter, pungent, piquant, spicy, warm and full of all the five types of elixirs (Saxena et al., 2004; Chauhan, 2004).

Recent research has revealed that the “Kamdhenu Ark” prepared from cow urine has been found to augment B and T-
Lymphocyte blastogenesis; IgG, IgA and IgM antibody titers in mice (Chauhan et al., 2001). It has been observed that cow’s urine has increased the phagocytic activity of macrophages, thus, helpful in prevention and control of bacterial infections. It also increases the secretion of IL-1 and IL-2. Thus the cow urine has been found to modulate the immunity in positive manner that can be used as an immunomodulatory drug in animals (Chauhan et al., 2004).

Recently cow urine has been granted U.S. patents (No. 6410059 and 6896907) for its medicinal properties, particularly for its use along with antibiotics for the control of bacterial infection and fight against the cancers, thus opening a new era in medical science. Cow urine along with the antibiotics also prevents the development of resistance in micro-organisms against the antibiotics (Chauhan, 2005).

Hence, considering the above facts in view the present study was planned to evaluate the healing potential of cow urine on experimentally created wounds in goats in terms of gross, histomorphological, and histochemical study.

Keeping in view the enormous role of cow’s urine in veterinary and human medicine, the present experiment was designed with the following objectives:
1. To ascertain the feasibility and establish the modalities of cow urine in the management of wound.

2. To evaluate wound healing potential of cow urine when applied topically.

3. To evaluate wound healing potential of cow urine when applied topically and administered orally.

4. To compare the different methods of application of cow urine on the healing of wound.

5. To document the histopathological status during reparative process following cow urine therapy.

6. To study the profile of collagen, elastin and reticulin histochemically during different phases of healing.