ASSESSMENT OF GELATINASES ACTIVITY IN CYSTIC FLUID OF Coenurus gaigeri OF GOAT ORIGIN USING GELATIN ZYMOGRAPHY

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Revised: May 28, 2016; Accepted: June 15, 2016

Abstract: Coenurus gaigeri cysts (a larval stage of Taenia gaigeri) were collected from goats slaughtered at local abattoir and was washed thoroughly with PBS (pH 7.4). The cyst fluid was aspirated, centrifuged at 10,000 rpm for 15 minutes at 4°C and the supernatants were used for further study. On gelatin zymographic analysis, the prominent bands at 220 kDa MMP-9, 135 kDa MMP-9, 92 kDa MMP-9, 72 kDa MMP-2 and 40 kDa MMP-2 were observed in the cystic fluid of Coenurus gaigeri. Among the five bands, 92 kDa MMP-9 band was showing the greatest gelatinolytic activity. The 72 kDa MMP-2 band was also very prominent in cystic fluid of Coenurus gaigeri and found along with its active forms (62 kDa) as doublets. The relative amount of 92 kDa MMP-9 band was found to be four times greater than that of 72 kDa MMP-2.

Key words: Coenurus gaigeri, Gelatinsases, Goat

INTRODUCTION

Coenurosis is caused by Coenurus gaigeri, affects caprine and are occurred both solitary as well as a generalized cyst [1,2]. C. gaigeri is reported in the thigh, neck muscle, diaphragm, heart, kidney, uterus, rectum and urinary bladder of domestic goats [3] and thigh muscles of Sambar [4]. Coenurus gaigeri in goats may reach maturity in organs other than brain and spinal cord. The cysts are mostly seen in intramuscular and subcutaneous tissues of these animals and have worldwide distribution [5,6]. The occurrence of this metacestode in goats has been reported by different workers from different parts of India [7-9].

Matrix metalloproteinases (MMPs) are a family of enzymes, comprising at least 18 members of enzymes, capable of degrading extracellular matrix (ECM) during several physiological and pathological conditions [10]. MMPs were considered only for the ability to degrade ECM molecules (e.g., collagen, laminin and fibronectin) and to release hidden epitopes from the ECM. MMP-2 and MMP-9 are endopeptidases of the MMP family produced by neutrophils, macrophages and monocytes, having a significant effect on immunity. Involvement of MMPs activity, particularly gelatinases in both protozoan and helminth infections is evident.

Host invasion and tissue migration of several nematodes have been linked to the expression and release of parasite-derived proteases. In nematodes, MMPs are the proteases which are thought to play an important and essential role in these migratory and invasive phenomena [11]. Multiple enzyme activities of MMPs with various molecular weights in different helminthiasis were noticed [12].