INTRODUCTION

The enzyme 'rennin' resides in the fourth stomach (abomasum) of young suckling calf and is secreted in both active form and its inactive precursor known as 'prorennin'. The mechanism involved in the activation of prorennin to rennin appears to simulate other enzymes of the digestive tract, namely pepsin and trypsin. Prorennin and pepsinogen in stomach and trypsinogen in intestine, are transformed to their active forms with the release of peptides from their molecular structures.

The crude abomasum extract of the calf containing rennin is commonly known as 'rennet' and extensively used for the coagulation of milk in cheese manufacture. Coagulation of milk can as well be accomplished by a great number of proteolytic enzymes of various origins, but in the dairy industry the enzyme rennin is of major interest for its inimitable milk clotting behaviour. The usual procedure for isolating rennet involves a counter-current extraction of shredded abomasum of slaughtered calves with 10% solution of sodium chloride containing preservatives like boric acid for preventing bacterial growth. Rennet, in addition to the enzyme rennin may also contain other enzymes like pepsin, trypsin and peptidases depending upon the age of the slaughtered calf. But a most homogeneous enzyme preparation can be obtained from stomach of newly born calves.

Fomin (1939) suggested a new technique for extracting rennet from calves without slaughtering them. In his method, a fistula was made in the abomasum of the young
oalf and an ebonite cannula were fixed. Abomasal juice containing the enzyme rennin was obtained by allowing the calf to drink diluted whey and removing subsequently the mucosa secretion by opening the cannula. The abomasal juice thus obtained was purified and concentrated. Berridge et al. (1943) following Fomin's method, reported that the method was uneconomical in those days under the conditions existing in their country. Literature survey further reveals that this method of preparing rennet was neither adopted for commercial production nor studied extensively.

In recent years preparation of calf rennet by fistulation technique was attempted by us firstly, because of frequent shortage of such rennet in world market, resulting in increased price. Secondly, in a country like India where slaughtering of calves is against the sentiments of the people due to religious causes, demands alternate procedure for the production of rennet. At the same time short supply of rennet has caused much concern. Hence it is desirable to explore the fistulation technique further for rennet production in overcoming the paucity of rennet in the country. It is, therefore, ineffibly evident that such an endeavour is likely to reduce import of rennet and thereby save foreign exchange involved.

For commercialisation of a product like enzyme, it is necessary that it should be cheap, active and should have a long shelf life. In this present pursuit, efforts
have been made to standardize the techniques for getting maximum yield of stable rennet from fistulated cow calves. Comparative studies on physico-chemical properties with Hansen rennet and rennets from fistulated buffalo calves and goat kids were also conducted with a view to evaluate cheese quality using fistulated rennet from these species.