STUDIES ON VEGETABLE RENNET

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CHEDDAR cheese is a well-known milk product whose importance lies not only in its nutritive value but also in its better keeping quality. Of the other preparations of milk very largely used in India, ghee lacks the milk proteins of a high biological value much needed in the diet, particularly of vegetarians ; while *khoa* and curd cannot be easily preserved over long periods. Unfortunately, however, the use of cheese prepared by the usual method of coagulating the milk with rennet derived from the stomach of the calf is held to be objectionable by a large section of the Indian population. In order to make such a useful product acceptable to this class of people, a search was made for a milk coagulating agent of purely vegetable origin which could be used for the preparation of cheese on a commercial scale.

Knowledge of plants possessing the property of coagulating milk dates from the sixteenth century. Green [1893] mentions its presence in *Gallium varum* the juice of which was described by Methelo in the sixteenth century ' Galium inde nomen sortitum est suum quod lac coagulet '. Martin [1885] and Baginski [1882-83] refer to the presence of such an agent in *Carica papaya*. Lea [1883] extracted the active principle from the berries of *Withania coagulans* with glycerine and sodium chloride solution. Christen and Virasoro [1935] were able to obtain an active preparation from the flowers of thistle.

A large number of plants has been studied at this Institute, with the object of selecting one capable of giving a preparation possessing active coagulating powers. Amongst others the enzyme had been found to be present in *Madicago sativa*, *Lolium perenne*, *Androprogan schisenan*, *Ficus palmata*, *Ficus carica*, *Withania somnifora* and *Withania coagulans*. The enzyme from the first three plants was found to be much less active than from the last four. Again it was much more active in the latex of *Ficus palmata* and *Ficus carica* than in the juice of these plants, a drop of the latex being sufficient to coagulate 10 c.c. of milk in two to three minutes. The latex from *Ficus palmata*, however, imparts a very bitter taste to the curd and the separation of the active rennet from the latex, owing to the great amount of labour and expense involved in its collection, was not economical. The latex from *Ficus carica*, however, besides being highly active, is free from this bitterness of taste. This plant grows