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A NATIONAL DRINK OF THE HILL-FOLK OF DARJEELING

By NISHI KANTA RAY, B.A.

Bacteriologist, Vaccine Laboratory, Bengal Public Health Department

The hillmen of Darjeeling freely indulge in a mildly intoxicating drink called *chhang* brewed from *marua* millet (*Eleusine coracana*). This is the national drink of the people and they are permitted to prepare it up to a certain limit, without the payment of any fee. Sir George Watts in his *Dictionary of the Economic Products of India* gives the composition of *marua* grain (husked) as follows :—

Water	13.2	per cent.
Starch	73.2	„
Fibre	2.5	„
Albuminoids	7.3	„
Oil	1.5	„
Ash	2.3	„

In the manufacture of the alcoholic liquor the starchy portion is first converted into sugars which are next fermented. These changes are brought about by the activity of various moulds and yeasts, and a culture of these organisms is supplied in the form of *murcha* prepared from several ingredients. C. M. Hutchinson and C. S. Ram Ayyar describe the manufacture of *murcha* in the following manner :—

'In Darjeeling the outer skin of the root of certain wild plants [that used by the Nepalis is known to them as *bhimsenpati* and was identified by the Curator of the Lloyd Botanic Garden as *Buddleia asiatica* Lour., whilst the Limboo tribes use *wading-hang-ma* (*Polygala arillata* Ham.)] is dried and powdered; four ounces of this material, half an ounce of ginger, three pieces of red pepper (chillies), and eight pounds of ground rice are kneaded into a stiff paste with water, made up into small round cakes about half an inch thick and dusted over with powdered cake from a previous batch; the cakes thus prepared are wrapped in fern leaves, placed on a mat in a dark corner of the house, and left undisturbed for three days, when they are taken out and dried, preferably in the sun, and are subsequently kept dry by hanging in a cloth above the fireplace'. These authors ascribe the saccharification of starch and subsequent alcoholic fermentation to the activity of three kinds of moulds (such as *Rhizopus cambodja, Dematium,* and *Penicillium*) and one kind of yeast, these organisms being introduced in the *murcha* with the jungle products, through dusting with an earlier batch, from the air, or from the fern leaves used for wrapping the cakes. It will be noted that the enzyme amylase secreted by the moulds changes the starchy matter into maltose, which is next converted into glucose and ethyl alcohol by the maltase and zymase of yeast. Fermentation enzymes are also secreted by the moulds to a certain extent.

The different stages encountered in a brewery for the preparation of the *marua* grain may be briefly outlined as follows :—The grain is cleansed and then boiled with water until quite soft. It is next allowed to cool and thoroughly mixed with the *murcha* ferment (in the proportion of 2 to 4 cakes to one maund of the grain), and spread on the floor of the house to the depth of 8 to 10 inches, and kept in this position for about 40 hours, during which time the moulds develop and spread throughout the mass and partly saccharify the starch during their growth. Afterwards the infected material is transferred to bamboo baskets which are then wrapped up in plantain leaves, probably to prevent the introduction of extraneous organisms from the air, etc. The grain is allowed to remain in this position for 15 to 20 days so that the organisms may produce the desired effect. After this period the grain is ready for use. Some of the prepared grain is placed in a vessel consisting of a section of bamboo known as *chonga;* hot water is next poured into it and the mixture is left for a while. The liquor is next imbibed through a thin reed or bamboo pipe. The vessel may be replenished repeatedly with hot water until all virtue has gone out of the grain. The alcohol-content of the liquor when used in this manner is very low, less than 1 per cent. by volume; no wonder, then, that men, women and children delight to sip it at all times from morning till night. It is only when the fermented grains are steeped in an equal amount of water for 24 hours that the percentage of ethyl alcohol rises to 6 to 8 per cent.

The beverage is not only a solution of ethyl alcohol in water but it also contains other substances derived from starch, namely, dextrin, malto-dextrin, and maltose which has not been fermented. It is thus a food as much as a drink. The chief by-products (the nature and proportion of which depend upon the character of the grain and of the yeast) in all fermented liquids are glycerol (derived from the decomposition of sugar by yeast), succinic acid and fusel oil (formed from the amino-acids which in turn result from the decomposition of proteins in the grain and also in the yeast), formic, acetic and other acids (from bacterial side fermentation, etc.), and the various aldehydes and esters.

(Ref.—'Bakhar: The Indian Rice Beer Ferment'—Memoir of the Department of Agriculture in India, Bacteriological Series, Vol. I, No. VI).