

Beyerinck (26) in 1899 isolated two yeasts, one from Kephir, which he named *Sach. Kefir*, and one from Edam cheese, *Sach Tyriocola* which fermented milk sugar and produced alcohol; and he further isolated from them an invertive enzyme which he called "lactase", which he found had the power of inverting the milk sugar, and cane sugar but not maltose.

This conclusion was, however, contradicted by Schmurmans-Stekhoven (27), who was unable to invert milk sugar with the enzyme "lactase"; and afterwards de Freudenreich (28) came to the same conclusion.

Bochiocchio (29) has also isolated a top fermenting yeast from Grana cheese, which produces blisters on the cheese. This form coagulates milk with partial peptonization, and produces an agreeable foaming beverage when grown in whey.

Jorgensen (30) isolated a true *Saccharomycete* from Kephir, which produces about 1 per cent. of alcohol in the course of 8 days. This species he named *Sach. fragilis*, on account of the feeble powers of resistance of the cell wall. It produces oval spores, which are soon set free. So far as I am aware, this is the only species of lactose fermenting yeast yet discovered which is a true *Saccharomycete*.

Duchaux (31) who reviewed the lactose fermenting yeasts in 1900, came to the conclusion that the only three yeasts which fermented sugar (milk sugar) were those isolated by himself, Adametz, and Kaiser. Those subsequently isolated are either insufficiently described, and consequently one cannot say whether they are new species or not; or else they simply assimilate the lactose and burn it in contact with the air.

The *Torula amara* ferments milk perfectly, even when oxygen is not present. Cultures were grown in whey bouillon in an atmosphere of hydrogen, and the sugar of the medium was fermented. In ordinary whey cultures, the sugar is completely fermented, as the following experiment shows:

Whey containing 37.65 grams of sugar per litre before fermentation, gave no trace of sugar (Fehling's solution) after eight days' growth; and the fermented solution was found to contain nearly 3 per cent of alcohol.

Kaiser suggested that certain of the lactose fermenting yeasts might be of economic importance; and on account of the complete fermentation of sugar by the *Torula amara*, it might, we presume, be used in the manufacture of alcohol from whey.

BITTER CHEESE EXPERIMENTALLY PRODUCED.

A peculiarity about some of the bacteria that produce bitter milk is that the bitter taste disappears when the milk is made into cheese; but the *Torula amara* produces bitter milk and bitter cheese also. We made several cheese, using cultures of the *T. ula*, and the cheese thus made were very bitter.

The cultures used in the first experiments were made by breaking