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## BUTTER PRESERVATIVES.

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Butter is composed of fat, water, curd, and a small amount of mineral matter. Fat is the most important constituent, and forms 84 to 87 per cent. of the butter. Butter fat is an extremely complex substance, composed of fatty acids in combination with glycerine. It differs from other fats, such as lard, tallow, etc., in that it contains a larger number of these glycerides. Besides the glycerides of the insoluble and non-volatile acids found in all fats, butter contains notable quantities of the glycerides of soluble and volatile acids. Some of these acids have a decidedly disagreeable odor, and, if by any means the glycerides containing these acids are decomposed, very strong rancid odors are developed. Furthermore, some of the fats are unsaturated compounds, which more or less rapidly combine with the oxygen of the atmosphere and thus set in motion changes which may not only destroy the pleasant aroma of good butter, but may also produce the disagreeable rancid smell common to bad butter.

The amount of curd in butter is not large, and, while it readily undergoes putrefactive changes, does not appear to directly affect the keeping quality of the butter.\* It serves, however, as food for the micro-organisms which cause the change and thus tends indirectly to produce bad flavors.

It is thus evident that the constituents of butter in their natural state are all delicate substances, some of which, or a combination of the whole, produce the peculiar aroma of good butter, and that the bad flavors are produced partly, at least, through the decomposition and oxidation of these substances. Most of these changes are doubtless due to the action of ferments which also produce compounds of an unpleasant nature. In addition to this, butter may have undesirable taints due to improper feeding of the cows, lack of care in treatment of the milk and cream, and to carelessness in the manufacture of the butter. Many of the faults of butter, due to these various causes, can be overcome. It is only by exercising the utmost care in every detail, from the production of the milk to the manufactured butter, that an article of the desired quality can be secured. But all butter, no matter how carefully it is made, will go "off flavor" in a comparatively short time.

\*College Report, 1902, page 39.