

SOME PROPERTIES OF SALICYLIC ACID.—BY M. HENRI LAJOUX.—SALICYLIC acid has already obtained an important place in therapeutics and the arts, though it is not long since its manufacture was rendered practicable by Kolbe. The author's experiments show that the elimination of salicylic acid by the kidneys is more rapid than is generally supposed: its presence in the urine may be detected half an hour after ingestion. This differs from the conclusion of German writers who allow two hours from the time of absorption for the appearance of the acid in the excretæ. Twenty hours are required for its total elimination. The antiseptic properties of the alkaline salicylates are greatly inferior to those of salicylic acid. Kolbe has shown that salicylic acid forms alkaline salicylates when added to fresh venous blood. Very pronounced effects, therefore, should not be expected from the administration of the acid if means are not taken to prevent neutralization by the alkalis present in the blood, and, as citric acid replaces salicylic in its combinations, M. Lajoux advises the employment of a syrup containing citric acid and 0.25 per cent. of salicylic acid. To preserve syrups liable to ferment, such as those of cherries, mulberries, gentian, capillaire, and ipecacuanha, he finds that a minimum of one tenth per cent. of the sugar contained in the syrup is necessary. His experiments were conducted in a laboratory having a temperature of about 17° C., in test tubes loosely covered with paper. At the end of two months they were still perfectly fresh, although other samples not treated with the acid were completely decomposed.

J. Muller has remarked that $\frac{1}{500}$ of salicylic acid does not prevent the formation of mould in urine, which, however, still remains acid and free from bacteria. According to the same experiments, half this proportion of carbolic acid preserves urine from every kind of change. It is well known that salicylic acid paralyzes much more energetically than carbolic acid the action of yeast and ptyaline, the transformation of glycogen into sugar, and the gastric fermentation; it prevents also both the lactic and sinapic fermentation. In other cases it is carbolic acid which produces the more intense effect. It seems, indeed, as if the action of carbolic acid were directed specially against the development of mould, and that of salicylic acid against fermentation. M. Lajoux is of opinion that it would be highly interesting to study the effects of these two bodies upon the grainy matter studied by M. Baudrimont under the name of *pseudo-organised body*, which precedes the formation of algae (*oscillaria thermalis*) in Vichy water under the influence of light and atmospheric oxygen. Those who, with Berthelot, do not see in fermentation a phenomenon correlative to life and the development of an organised being, and those who, with Fremy, attribute to semi-organised bodies the production of the organisms which characterise the true fermentations of Pasteur, will find in the difference of action of salicylic acid on mould and on ferments, one argument the more in favour of their doctrines.

M. Lajoux has observed, as also have M. M. Millon and Leweran, that salicine, in passing through the

animal organism, is transformed into salicylic acid. If salicylic acid exerts a febrifuge action, this observation should explain the similar action of salicine.

FORMIC ACID AS AN ANTISEPTIC.—The number of antiseptics is now so considerable that it seems almost hazardous to wish to increase it. Each new antiseptic that appears is extolled as the only saviour, and page after page of testimonials proves its excellence and infallibility. As the people may easily be distracted if every "discoverer" pours forth the abundance of his paternal joy over his offspring, which is frequently far from ripe, it is easy to see that the series of experiments made without prejudice by disinterested persons is of great value. In the experiments, made and published recently by Bidwell and others, they overlook, says G. Feyerabendt, one substance, which for certain purposes cannot be replaced by any other, namely, formic acid. He does not lay claim to priority, for Dammer, in his excellent dictionary, mentions its antiseptic properties, nor is he a manufacturer of the article; so he does not speak in his own interest, but in that of the subject.

In acid solutions formic acid far surpasses carbolic acid, and is especially adapted to the preservation of fruit syrups. Experiments made by Feyerabendt in his own household for two years have, without exception, been crowned with success. He has two jars of pickles made with vinegar and sugar from the year 1875, that have only been covered with a loose glass cover, yet they have preserved their freshness, and show no trace of mould or decay. The taste of formic acid is pure, acid, and pleasant, the price low, and its use very simple. He has employed from $\frac{1}{4}$ to $\frac{1}{2}$ per cent. of it in vinegar, fruit-juice, glue, ink, etc., and is convinced that even smaller quantities will answer the purpose.

He especially seeks to excite the attention of housekeepers, and feels confident that they will be satisfied with the results, and introduce formic acid as a good and true friend in pantry and kitchen.

Ordinary formic acid is made by heating together to 110° C. equal parts of dry oxalic acid and glycerine until no carbonic acid is evolved. The pure concentrated acid is obtained by decomposing the formate of lead by sulphuretted hydrogen, and might contain lead. (*Scientific American.*)

SALICYLIC ACID FOR PRESERVING LIME JUICE.—The following, which will be both new and interesting to many, is communicated to the *Pharmaceutische Zeitung* by Niemer, a pharmacist of Münster. It is too well known that the preservation of recently expressed lime juice is a great difficulty to pharmacists. According to two experiments, 0.25 of a gramme of salicylic acid will prevent the development of fungi in three pounds of fresh lime juice, the latter being in a half-filled flask. A trial made under similar conditions, but without the salicylic acid, resulted in the formation of mould in ten days. It was also found that cream which refused to churn could readily be made to do so by the addition of a very small quantity of this acid.