

ALIEN PROPERTY CUSTODIAN

METHOD OF MANUFACTURING SUCCINIC ACID

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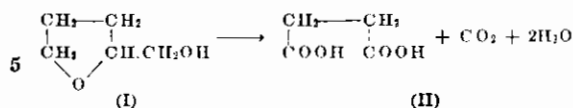
The present invention relates to a method of manufacturing succinic acid, which consists in employing tetrahydrofurfuryl alcohol which is the reduction product of furfuryl, as the starting material and carrying out its electrolytic oxidation in dilute sulphuric acid with insoluble electrodes. The object thereof is to obtain by a very simple means the succinic acid useful as the starting material in synthetic chemistry or a condiment for use in making Japanese "Saké" (Rice wine) and other kinds of drinks, and food.

As regards the materials for the manufacture of succinic acid, there are few to be had easily in large quantities. Especially, such materials have the disadvantage of requiring complicated operation for the manufacture of succinic acid.

According to the present invention, succinic acid can be produced easily by employing as the starting material tetra hydrofurfuryl alcohol, namely, the reduction product of the furfuryl easily obtained by the treatment of chaffs, straw, etc., which are no better than the wastes of agricultural products, with dilute mineral acid; electrolysing the same in dilute sulphuric acid with an undivided electrolysing cell having no diaphragm by passing a suitable amount of electric current through it with insoluble anode (for example, lead and lead peroxide) and thus effecting its electrolytic oxidation.

To describe the chemical change of said elec-

trolytic oxidation briefly, it is presumed to be as follows:



In the above, (I) is tetrahydrofurfuryl alcohol; and (II), succinic acid. The mechanism of the intermediate stage of the oxidation is still under discussion.

The following is an example of the manner of performing this invention:

Dissolve one part of the initial material, tetrahydrofurfuryl alcohol, in about 10 parts of normal sulphuric acid solution, and using lead peroxide anode and lead cathode in the undivided electrolysing cell having no diaphragm, pass a suitable amount of electric current (for instance, 12 Faraday per mol.) at the current density of about 2 amperes per square decimeter. Then, succinic acid will be produced easily with a good yield. By the way, the terminal voltage between the electrodes should be about 3 volts.

The thus-obtained electrolyte may be extracted with a solvent, but the crystals may be separated directly by concentrating it and therefore if it is recrystallized out from water and refined, 7.5 parts of succinic acid is yielded from 10 parts of the starting material.

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