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METHOD OF SEPARATING OPTICALLY ACTIVE GLUTAMIC ACID WITHOUT RACEMIZATION

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3 Claims. (Cl. 260—118)

The present invention relates to a method of separating optically active glutamic acid without racemization which consists in removing the combined mineral acid by employing a glycocoll alkyl derivative such as betaine and sarcosine as a neutralizer in separating glutamic acid by the neutralization of glutamic acid hydrochloride and other mineral acid salts of glutamic acid. The object thereof is to obtain a product which has great seasoning power by preventing the racemization of glutamic acid.

If alkali hydroxide or alkali carbonate is used in separating glutamic acid from glutamic acid hydrochloride or other mineral acid salt of glutamic acid, it is inevitable that glutamic acid should be partly racemized. This tendency may be somewhat lessened by the employment of ammonia, but even then the racemization to some extent is unavoidable. According to this invention, by using a glycocoll alkyl derivative such as betaine or sarcosine as a neutralizer, the optical rotatory glutamic acid, which is inevitably racemized with ordinary alkaline matter, is separated without reducing its rotatory power in the least and glutamic acid is crystallized as a big crystal, so that it can be separated from the mother liquor and washed and refined with ease. Laevo-rotatory glutamic acid has a far weaker taste than the dextro-rotatory acid. Therefore, the racemization reduces the value of dextro-rotatory glutamic acid considerably when utilized as a seasoning, so it is a matter of great significance to separate dextro-rotatory glutamic acid without racemization.

Example I.—183.5 grams of dextro-rotatory glutamic acid hydrochloride was dissolved in 0.6 litre of water and then the solution was mixed with 117 grams of betaine by a stirrer, the crystal of betaine vanished immediately and the crystal of dextro-rotatory glutamic acid was formed. After cooling, it was filtered and then washed with water. Thus, it was possible to obtain 140 grams of the product having the melting point 201.5°–202° C. and the specific rotatory power

$$(\alpha)_D^{20} = +30.6°.$$

(solution of hydrochloric acid). The mother liquor consisting of betaine hydrochloride, betaine may be recovered by the proper treatment.

Example II.—If 11.7 grams of powdered betaine is added to solution of sulphuric acid salt of dextro-rotatory glutamic acid consisting of 14.7 grams of dextro-rotatory glutamic acid and 66 c. c. of 1.5 normal solution of sulphuric acid, it is dissolved to a clear solution and the crystal of dextro-rotatory glutamic acid will be produced pretty soon. When the crystal is collected by filtration and washed with water, substantially the same result as above is obtained.

I claim:

1. A method of recovering optically active dextro-rotatory glutamic acid from its mineral acid salts without racemization, comprising neutralizing the combined mineral acid of said salts with an alkyl derivative of glycocoll.

2. A method of recovering optically active dextro-rotatory glutamic acid from its mineral acid salts without racemization, comprising neutralizing the combined mineral acid of said salts with betaine.

3. A method of recovering optically active dextro-rotatory glutamic acid from its mineral acid salts without racemization, comprising neutralizing the combined mineral acid of said salts with sarcosine.

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