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PROVISIONAL SPECIFICATION.

[Communicated from abroad by The FARBENFABRIKEN VORMALS FREIDRICH BAYER & Co., of Elberfeld, Germany.]

The Manufacture or Production of Acidyl Salicylic Acids.

I, HENRY EDWARD NEWTON, of the Office for Patents, 6, Bream's Buildings, Chancery Lane, in the County of London, Patent Agent, do hereby declare the nature of this invention to be as follows :—

My foreign correspondents discovered some time since that acetyl salicylic acid, having the formula $C_6H_4\begin{cases}OCOCH_3\\COOH\end{cases}$ can be obtained by treating salicylic acid, or its salts, with acetic anhydride, or with acetyl chloride, and that this acetylized acid exhibits valuable therapeutical properties.

My foreign correspondents have now found that other acidyl derivatives of salicylic acid which contain, instead of acetyl, other fatty acidyl radicles, also exhibit valuable therapeutic properties, and that these acidyl derivatives, which were hitherto unknown, can be obtained in a manner analogous to the above mentioned method for producing acetyl salicylic acid, *viz.* :—by treating salicylic acid or its salts with the anhydrides or chlorides of the respective fatty acids, such as propionic acid, butyric acid, valeric acid, or the like. My foreign correspondents have further found, that on producing acidyl salicyclic acids, it is more profitable to perform the reaction in the presence of condensing agents, such as concentrated sulphuric acid, zinc chloride, sodium acetate, or the like. If, for instance, acetic anhydride is allowed to act on salicylic acid in the presence of one of such condensing agents, according to recent researches of my foreign correspondents, a larger yield of acetyl salicylic acid is obtained than is the case if the reaction is performed without the addition of condensing agents.

In order to illustrate the production of the new acidyl derivatives of salicylic acid, the following examples are given, the parts being by weight.

EXAMPLE A.

To a solution prepared by heating a mixture of 100 parts of salicylic acid with 200 parts of propionic-acid anhydride on a water-bath, 1 part of concentrated sulphuric acid (of 66 degrees Baumé) is added. The reaction sets in immediately, and will be finished after heating the mixture for about one hour on a water-bath. On distilling off the unchanged propionic anhydride, the pure propionyl salicylic acid separates from the reaction mixture in the shape of small white and glittering leaves, which melt at about 95 degrees Centigrade, and are soluble with difficulty in water.

The process proceeds in an analogous manner if, instead of propionic anhydride, the anhydrides of other fatty acids are employed. Thus, for instance, from butyric anhydride, the butyryl salicylic acid, which melts at from 78 to 79 degrees Centigrade, from valeric anhydride, the valeryl salicylic acid melting at from 87 to 89 degrees Centigrade is obtained.

[*Price* 8*d.*]

Newton's Manufacture or Production of Acidyl Salicylic Acids.

The production of the new acidyl compounds with the acid of the chlorides of the respective acids is illustrated by the following:

EXAMPLE B.

A mixture prepared from 25 parts of salicylic acid and 20 parts of propionyl chloride is heated, for several hours, in a vessel which is provided with a reflux condenser. Subsequently, the unchanged propionyl chloride is distilled off with the aid of a water-bath. The white crystalline mass thus obtained is purified by a recrystallization from dry chloroform, the above described propionyl salicylic acid being thereby obtained in a pure state.

My foreign correspondents wish to point out that they do not intend to confine themselves to the particulars given in the above examples, as these are merely typical, and can be varied within wide limits, without altering thereby the nature of the present invention. Thus, for instance, instead of the free salicylic acid, the salts of this acid can likewise be employed.

Dated this 1st day of May 1899.

NEWTON & SON,
Agents for the Applicant.

COMPLETE SPECIFICATION.

The Manufacture or Production of Acidyl Salicylic Acids.

I, HENRY EDWARD NEWTON, of the Office for Patents, 6, Bream's Buildings, Chancery Lane, in the County of London, Patent Agent, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

In the Specification of Letters Patent No. 27088, dated December 22nd 1898, it is stated that acetyl salicylic acid,—having the formula $C_6H_4\begin{cases}OCOCH_3\\COOH,\end{cases}$ can be obtained by treating salicylic acid, or its salts, with acetic anhydride, or with acetyl-chloride, and that this acetylized acid exhibits valuable therapeutic properties.

My foreign correspondents have now found that other acidyl derivatives of salicylic acid, which contain, instead of acetyl, other fatty acidyl radicals, also exhibit valuable therapeutic properties, and that these acidyl derivatives, which were hitherto unknown, can be obtained in a manner analogous to the above mentioned method for producing acetyl-salicylic acid, *viz.*, by treating salicylic acid, or its salts, with the anhydrides or chlorides of the respective fatty acids, such as propionic acid, butyric acid, valeric acid, or the like.

My foreign correspondents have further found that, on producing acidyl-salicylic acids, it is more profitable to perform the reaction in the presence of condensing agents, such as concentrated sulphuric acid, zinc chloride, sodium acetate, or the like. If, for instance, acetic anhydride is allowed to act on salicylic acid in the presence of one of such condensing agents, according to recent researches of my foreign correspondents, a larger yield of acetyl salicylic acid is obtained than is the case if the reaction is performed without the addition of condensing agents.

In order to illustrate the production of the new acidyl derivatives of salicylic acid, the following examples are given, the parts being by weight.

EXAMPLE A.

To a solution prepared by heating a mixture of 100 parts of salicylic acid with 200 parts of propionic-acid anhydride on a water-bath, 1 part of concentrated sulphuric acid (of 66 degrees Baumé) is added. The reaction sets in immediately, and will be finished after heating the mixture for about one hour on a water-bath. On distilling off the unchanged propionic anhydride, the pure propionyl-salicylic acid separates from the reaction mixture in the shape of small white and glittering leaves, which melt at about 95 degrees Centigrade, and are soluble with difficulty in water.

The process proceeds in an analogous manner if, instead of propionic anhydride, the anhydrides of other fatty acids are employed. Thus, for instance, from butyric anhydride, the butyryl salicylic acid, which melts at from 78 to 79 degrees Centigrade, from valeric anhydride,—the valeryl-salicylic acid melting at from 87 to 89 degrees Centigrade is obtained.

The production of the new acidyl compounds with the aid of the chlorides of the respective acids is illustrated by the following :—

EXAMPLE B.

A mixture prepared from 25 parts of salicylic acid and 20 parts of propionyl chloride, is heated for several hours in a vessel which is provided with a reflux condenser. Subsequently, the unchanged propionyl-chloride is distilled off with the aid of a water-bath. The white crystalline mass thus obtained is purified by a recrystallization from dry chloroform, the above described propionyl salicylic acid being thereby obtained in a pure state.

My foreign correspondents wish to point out that they do not intend to confine themselves to the particulars given in the above examples, as these are merely typical, and can be varied within wide limits without altering thereby the nature of the present invention. Thus, for instance, instead of the free salicylic acid, the salts of this acid can likwise be employed.

Having now particularly described and ascertained the nature of the said invention and in what manner the same is to be performed, as communicated to me from abroad, I declare that what I claim is :—

1. The improvement in the production of acetyl salicylic acid consisting in performing the re-action of acetic anhydride on salicylic acid, or its salts, in the presence of suitable condensing agents, substantially as hereinbefore described.

2. The process for the production of acidyl derivatives of salicylic acid, which process consists in allowing the anhydrides or chlorides of propionic acid, butyric-acid, valeric acid, or the like higher homologues of acetic acid, to act on salicylic acid, or salts thereof, with or without the presence of suitable condensing agents, substantially as hereinbefore described.

3. As new articles of manufacture, the new bodies obtainable according to the processes, hereinbefore described and claimed.

4. The use of the new bodies hereinbefore described and claimed for therapeutic purposes.

Dated this 25th day of January 1900.

NEWTON & SON,
Agents for the Applicant.

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ERRATUM.

SPECIFICATION No. 9123, A.D. 1899.

In the Communication from Abroad *for* "Freidrich" *read* "Friedrich"

PATENT OFFICE,
23rd March, 1900.