CONTINUOUS METHOD FOR OBTAINING LAGOCHIRZIN

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Diterpenes from plants of the genus *Lagochilus* (lagochilin, lagochirzin, and their various derivatives) possess a hemostatic action. The most valuable in this respect is the diterpenoid lactone lagochirzin. The low level of lagochirzin in the plants (0.1-0.3%) and limited reserves of the raw material make it necessary to seek more effective methods for its production.

The use of lagochilin as the initial raw material for obtaining lagochirzin is undesirable because of the low yield of the latter [1], and we have therefore used a ketal derivative of lagochilin — 3,18-isopropylidenelagochilin [2].

Our task was to develop a new, cheaper and simpler, method for obtaining lagochirzin, consisting in the continuous dehydrogenation of 3,18-O-isopropylidenelagochilin. We have constructed a U-shaped reactor, consisting of a simplified model of an ordinary laboratory reactor of the flow-through type [3] and permitting the dehydrogenation of the initial material to be carried out in solution, a hydrostatic pressure being created by the solution of the raw material being dehydrogenated, itself.

We have studied the influence of solvents, the temperature of the reaction, and the space velocity on the yield of lagochirzin. Of the solvents tested (toluene, ethylbenzene, *o*-xylene, diethylbenzene), the most suitable is toluene. Under elevated temperature conditions (130-180°C) and at a space velocity of less than 1.0 h^{-1} the yield of lagochirzin fell appreciably, apparently because of the breakdown of the lagochirzin skeleton and its partial resinification.

The results of a study of the influence of the particle size of the catalyst and of the ratio of the diameter of the reactor to the height of the layer of catalyst (d:h) on the yield of lagochirzin showed that a catalyst with a particle size of 1-3 mm was more active than catalysts with particle sizes of 3-4 and 3-5 mm, while the optimum d:h ratio proved to be 1:15-1:20. A low yield of lagochirzin when the height of the layer of catalyst was decreased was due to an inadequate time of contact of the catalyst with the 3,18-O-isopropylidenelagochilin, while the low yield when the height of the layer was increased was due to an excessive time of contact between them.

The continuous method of obtaining lagochirzin by the technology that we have developed permits the yield of desired product to be raised considerably (by 7-12%) as compared with the known discontinuous method and the yield of lagochirzin to be increased to 85%.

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