SYNTHESIS OF ISOFLAVONES THAT HAVE HYPOCHOLESTERINEMIC ACTIVITY

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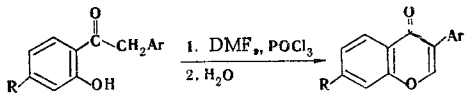
A modification of a method for the synthesis of isoflavones [1] was developed that makes it possible to rapidly synthesize natural isoflavones – cladrin (Ic), cabreuvin (Id), and their analogs (Ia, b) – in high yields:



I a-d

a R=OH, Ar=C_6H_5; b R=OCH_3, Ar=C_6H_5; c R=OH, Ar=3,4-$(CH_3O)_2C_6H_3$; d R=OCH_3, Ar=3,4-$(CH_3O)_2C_6H_3$

A solution of 0.01 mole of o-hydroxyaryl benzyl ketone in 10 ml of dimethylformamide was added to 6 ml of phosphorus at such a rate that the temperature of the mixture did not exceed 90-100°. After 30 min, the mixture was poured into water, and the precipitated isoflavone was removed by filtration. The physical constants of the synthesized compounds were in agreement with the literature data.

In experiments with rabbits (with experimentally induced atherosclerosis on a background of a cholesterol load) isoflavones Ic and Id showed the capacity to normalize lipid metabolism. They reduce the level of cholesterol, β-lipoproteids, and the cholesterol/phospholipid coefficient in blood serum.

The percentage of cholesterol in the aorta of rabbits who have received Ia and Ib was lower by factors of 1.46 and 2.11, respectively, than in a control group of animals. The investigated substances reduce the percentage of cholesterol in the liver. Thus the isoflavones have a pronounced antisclerotic effect.

LITERATURE CITED

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