SYNTHESIS OF SPIRO[PYRROLIDINE-3,2'-OXINDOLE]

Grygoriv G.V., Redkin R.G., Syumka E.I., Shemchuk L.A., Chernykh V.P.
The National University of Pharmacy, Kharkiv, Ukraine
e-mail: galkagrigoriv@gmail.com

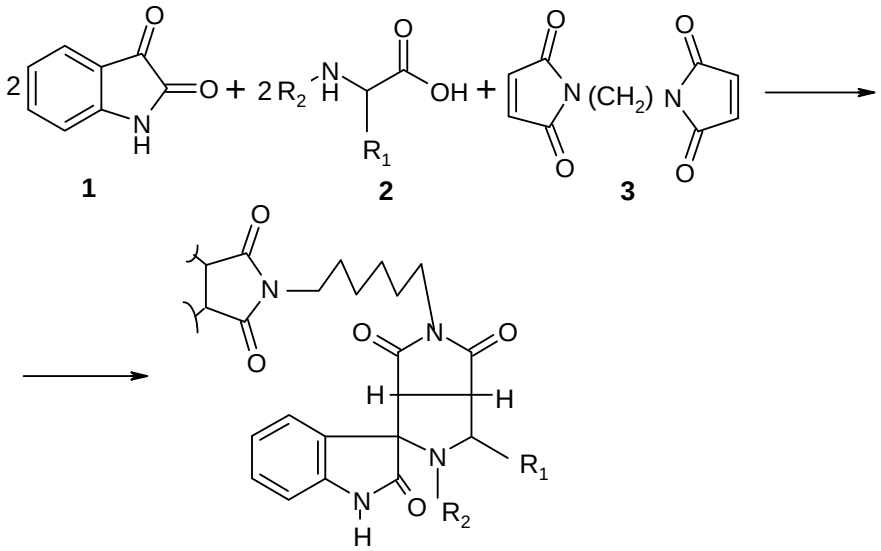
Spirooxindoles have been found as a core structure of many alkaloids with different pharmacological activities, such as antitumor, analgesic, antihypoxic and some other types.

Particularly, spiro[pyrrolidine-3,2'-oxindoles] reveal cerebroprotective properties and ability to reduce the high stressor-induced level of corticosteroid hormones in the blood in models of ischemic and hemorrhagic strokes.

Among the different synthetic strategies, multicomponent reactions (MCRs), which include stage of 1,3-dipolar cycloaddition, play a key role in the spirooxindoles' constructions.

To synthesize spiro[pyrrolidine-3,2'oxindoles] domino reactions (Strecker reaction / [3+2] cycloaddition) involving isatins (1), α-amino acids (2) and 1,3-dipolarophile (heksametylendimaleyinimid) (3) were used. The molar ratio was 2:2:1. As a solvent was used a mixture of isopropanol with water (3:1). The reaction proceeded under reflux for 2 hours. We obtained two types of products – amorphous precipitates, or oils. Recrystallization was performed from isopropanol. As a result we obtained products (4) with yields 35 – 95%.

Condensation reaction of isatins with α-amino acids and appropriate



1 **2** **3** **4**

dipolyarophiles has great synthetic possibilities and the variation of each component allows to achieve a high degree of chemical diversity of the target connection pool.