

## SYNTHESIS OF VARIOUS SUBSTITUTED SPIROINDOLINE-3,4'-PYRAN DERIVATIVES

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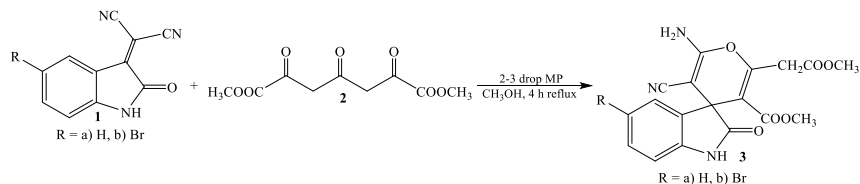
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The indole nucleus is the well known heterocycle. Compounds carrying the indole moiety exhibit antibacterial and fungicidal activities. Spirooxindole ring systems are found in a number of alkaloids like horsifiline, spirotryprostatin and elacomine. As a part of our research work devoted to the preparation of heterocyclic compounds involving indole derivatives.

Some indoline derivatives have been found to show very good FX-a inhibitory activities. Indoline derivatives have also been found to show an antagonistic effect on progesterone receptors. In addition, indolines have been evaluated for antimicrobial activity. Owing to the biological importance of indolines and in continuation of our work on the synthesis of biologically important heterocyclic compounds, the synthesis of some indolines is reported here in.

Dimethyl-1,3-acetonedicarboxylate (2) and isatilidenemalo-nitriles (1a,b) were boiled in the presence of 2–3 drops of methylpiperazine in methanol medium. Formation of [indoline-3,4'-pyran]-5'-carboxylate (3b) compound was determined from the Michael coupling reaction of methyl 2'-amino-3'-cyano-6'-(2-methoxy-2-oxoethyl)-2-oxospiro[indoline-3,4'-pyran]-5'-carboxylate (3a) with methyl 2'-amino-5-bromo-3'-cyano-6'-(2-methoxy-2-oxoethyl)-2-oxospiro-



**Scheme 2:** Reaction scheme of synthesis pyranes derivatives (3a,b)

The indole system and pyran ring are oriented at a dihedral angle of 87.3 (9)°. In the crystal structure, the molecules are linked by intermolecular N—H···N and N—H···O hydrogen bonds.

The reactions were monitored by *thin-layer* chromatography method. Structures of synthesized compound were confirmed by <sup>1</sup>H and <sup>13</sup>C NMR spectroscopy.