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Synthesis of Novel Anti-Invasive Target Heterocyclic Derivatives

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The literature survey informed us the importance of polyphenols and carbinols in pharmaceuticals, agrochemicals and industries, Inspired by these findings we started a scheme to synthesize a number of novel carbinols. As polyphenolics occur widely in nature and many of their analogues possess a variety of biological activities, *i.e.* antitumor, antiviral, antibiotic, antifungal, and anti-invasive *etc.* Polyhydroxy aromatic ketones are starting materials for the synthesis of different classes of natural polyphenolics and very often-appropriate protection of different hydroxyl groups of aromatic ketones is required to achieve the synthesis of the bioactive polyphenolic compounds.

In our group, we have tested the anti-invasive activity of various polyphenolics including flavonoids, chalcones, chromans, chromenes, prenylated acetophenones and hydroxymethylated ketones, *etc.* some of these compounds inhibited the invasion of human MCF-7/6 mammary carcinoma cells in confronting cultures with embryonic chick heart fragments at a concentration of 1 μm.

The search for anti-invasive treatments led us to synthesize and screen novel compounds for their effect in an assay for invasion *in vitro*. The assay consisted of organotypic confronting cultures of invasive human MCF-7/6 mammary carcinoma cells with embryonic chick heart fragments. The compounds were synthesized chemically and characterized with UV, IR, NMR and Mass spectroscopy. These compounds were tested for their anti-invasive activities in Human MCF-7/6 cells at various concentrations.