ABSTRACT

Flavonoids are a group of naturally occurring polyphenolic compounds that are widely found in the plant kingdom. These compounds possess an array of biological activities and are employed in the treatment of commonly occurring diseases. Literature survey revealed that chalcones, flavanones and aurones possess a broad spectrum of biological activities like antimicrobial, anti-inflammatory, antimalarial, antidepressant, antihistamine, antitubercular and anticancer. This thesis is an endeavor in this direction of synthesis and characterization of such compounds based on $^1$H NMR, $^{13}$CNMR, Mass spectroscopy and elemental analysis. One of the recently isolated flavanone (pisonivanone) from the Pisonia aculeate L was first time synthesized. In the present work a total 30 compounds including a series of 16 chalcones (3a-p) except 3e, 9 flavanones (4a-h&e) and 5 aurones (5a-e) were synthesized for the first time. Two new methods were developed for demethylation of the said flavonoids. Compound-3e and acetophenone-1 were synthesized by efficient alternative methods than earlier available approaches. Biological activities like antitubercular, antioxidant, cytotoxicity of the synthesized compounds and microbial screening of aurones has also been included. Computational approach was carried for these synthesized compounds against HIV-integrase. The results were satisfactory.