

Synthesis and Bioevaluation of some Carbamates from Substituted Isoxazoles

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Abstract—Large amounts of pesticides are used on agricultural soils worldwide because they increase crop yields, ensuring an abundant and affordable food supply. Pesticides are a management tool to aid the control of pests and their continued use is essential because these are important component of economy, based on agriculture. Chalcones or phenyl styryl ketones associated with different biological activities like cardiovascular, anthelmintics, antiulcer, anti-inflammatory, antiviral, antiallergic, fungicidal, bactericidal, insecticidal, antitumor, herbicidal, anticancer, antitubercular, anti HIV etc. Isoxazoles are present in the structures of many natural products and pharmaceutical agents. In fact, isoxazoles have long been targeted in organic synthesis due to the broad spectrum of their biological and pharmacological activities, which include hypoglycemic, analgesic, antiinflammatory, anti-bacterial, anti-infective and anti-tumor activities. Carbamates are among the most popular pesticides for home use, both indoors and on gardens and lawns. Carbamates are used as herbicides, fungicides and pesticides in the pharmaceutical industries as drug intermediates and polymer chemistry in the synthesis of polyurethane, as well as in peptide synthesis. In the present study, the reaction of synthesized chalcones on refluxing with hydroxylamine hydrochloride and anhydrous sodium acetate gave the corresponding isoxazoles. These isoxazoles further treated with epichlorohydrin, 4-chlorophenol and finally with phenyl isocyanate in the presence of dry benzene to get carbamates. These compounds were characterized by spectroscopy (NMR, IR) and other physical and analytical data. Most of these were screened for nematocidal activity against root-knot nematode (*Meloidogyne javanica*). Some of them have shown very promising activity. The findings suggested that the isoxazoles framework is an attractive template for synthesis of nematocides.