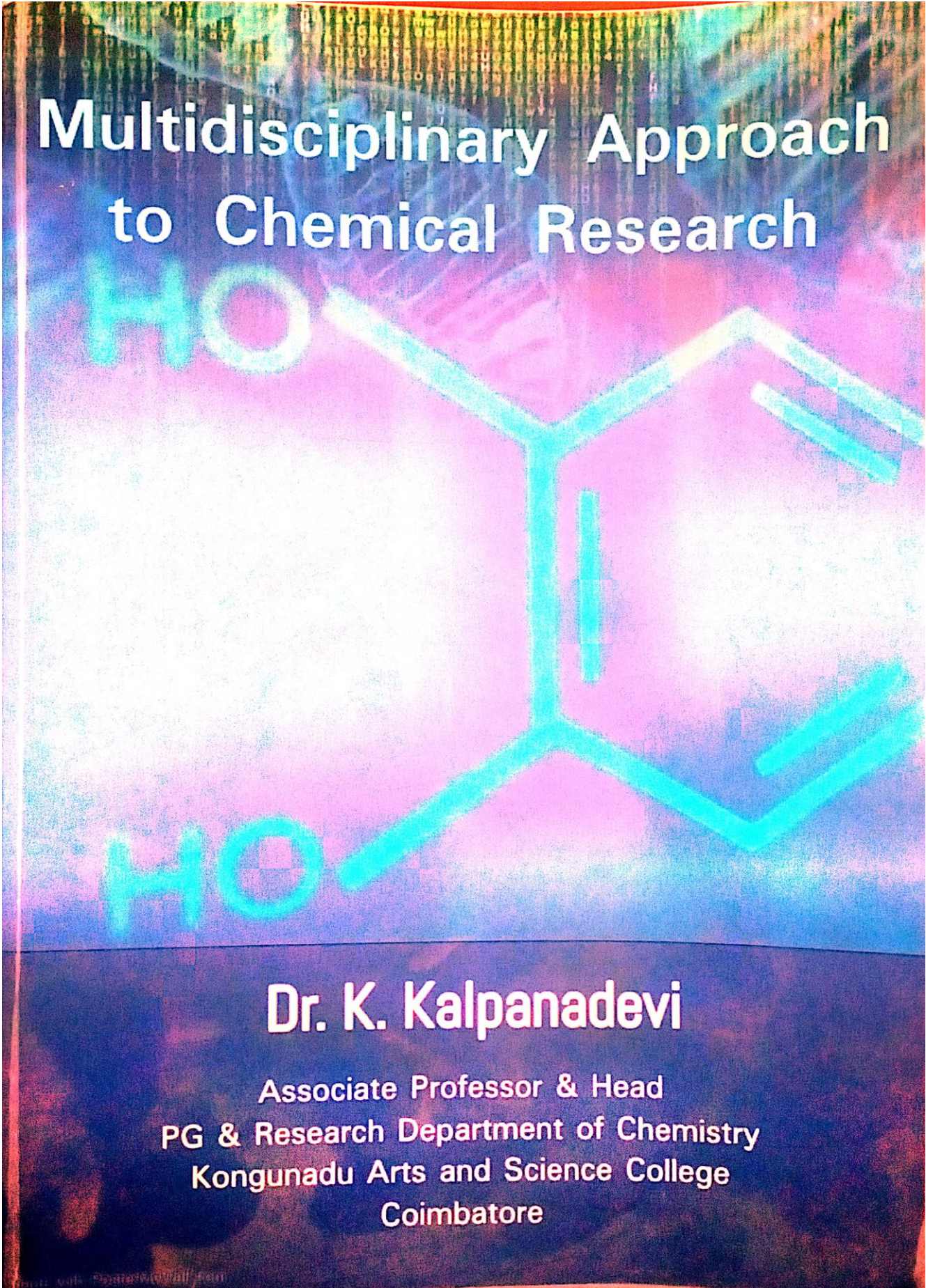




Multidisciplinary Approach to Chemical Research

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SYNTHESIS OF PYRAZOLINO AND ISOXAZOLINO CYCLOHEPT[b] INDOLE DERIVATIVES AND THEIR ANTIMICROBIAL EVALUATION

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Abstract:

Indole fused with a seven-membered carbocyclic ring is commonly observed structural feature among the series of bioactive compounds. This work describe a new class of cyclohept[b]indole, specifically pyrazolo- and isoxazolo- fused cyclohepta[b] indoles, has been prepared by the treatment of 2-(4'-methyl)benzylidene-1-oxo-3,4,5,10-tetrahydrocyclohept[b]indole with hydrazine hydrate and hydroxylamine hydrochloride in presence of sodium methoxide respectively. 2-(4'-methyl)benzylidene-1-oxo-3,4,5,10-tetrahydrocyclohept[b]indole which can obtained by aldol condensation of the 1-oxo-2,3,4,5-tetrahydrocyclohept[b]indole with 4-methylbenzaldehyde under basic conditions.

Keywords: 2-(4'-methyl)benzylidene-1-oxo-3,4,5,10-tetrahydrocyclohept[b]indole, 4-methylbenzaldehyde, pyrazino carbazole, isoxazolo carbazole, hydrazine hydrate, hydroxylamine hydrochloride

1. INTRODUCTION

Seven-membered rings fused with an indole are termed cyclohepta[b]indoles. Compounds exhibiting this structure display a broad spectrum of biological activities, inhibition of adipocyte fatty-acid-binding protein (A-FABP)[1], deacetylation of histones [2], antituberculosis activities [3,4], anticancer activities [1,5-8] and anti-HIV activities [1,9]. These biological profiles are found in natural products containing the cyclohepta[b]indole motif, as well as in pharmaceuticals [10,11]. Therefore, the biology of molecules derived from the skeleton of cyclohepta[b]indoles, as well as cyclopenta- and cyclohexa[b]indoles, has attracted considerable interest from the pharmaceutical industry as potential therapeutics in recent years. This is reflected by more than two dozen patents that have been issued in the past decade, solely based on the cyclohepta[b]indole moiety. Therefore efficient preparations for substituted cyclohepta[b]indoles become central interest for synthetic organic chemists.

Not only biological activities indole derivatives widely used in polymer industries. Where the polymer containing the carbazole moiety like poly (N-vinylcarbazole)