

MOLECULAR DESIGN BY CYCLOADDITION REACTIONS
OF HETEROCYCLES WITH SOME DIENOPHILES

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Cycloaddition reactions of cycloheptatriene with coumalic acid and its methyl ester afforded two types of bridged tetracyclic compounds, 6-carboxy- (Ia) and 6-carbomethoxy-tetracyclo[5.4.0.0^{2,4}. 0^{3,8}]undeca-5,10-diene (IIa), together with (6 + 4)cycloadduct (IIIa), respectively. Similar reactions with 4,6-dimethylcoumalic acid and its ethyl ester gave only the tetracyclic derivatives, 2-carboxy- (IIc) and 2-carbomethoxy-1,3-dimethyl-tetracyclo[5.4.0.0^{2,4}. 0^{3,8}]undeca-5,10-diene (IId), respectively.

Cycloaddition reactions of acenaphthylene with coumalic acid derivatives and 1,2,4,5-tetrazine derivatives afforded 1 : 2 adducts and/or fluoranthene derivatives and diazafluoranthene derivatives, respectively. Cycloaddition reactions of iso-pyrazole with diphenylcyclopropanone were also examined and afforded two types of 1 : 1 adducts, homodiazepinone and diazocinone.