**Synthesis of coumarin containing fluorescent compounds and their Diels-Alder reaction**

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Coumarins (2*H*-1-benzopyran-2-ones) and polycyclic compounds containing coumarin moiety occur in many plants and have important applications in biology. They form a group of more than 40 drugs, which are used in medicine and have diverse biological activities, viz. anticoagulant, antifungal, hypertensive, CNS depressant, antihelmintic, hypnotic, antitumor agents, and HIV protease inhibition. Coumarin compounds are used as additives in foods, perfumes, cosmetics, pharmaceuticals, cigarettes, and alcoholic beverages. They find application in fluorescent dyes, as they are effective fluorophores, characterized by high fluorescence quantum yields. Undeniably, they constitute the largest class of fluorescent dyes and are widely used as emission layers in organic light-emitting diodes (OLED), optical brighteners, and nonlinear optical chromophores.

In first part, different 7,8 substituted coumarin-4-acetic acids were reacted with 7-diethylaminocoumarin-3-carbaldehyde to give highly fluorescent 1,2-biscoumarinylethenes. The fluorescent compounds are thus prepared contains two distinct dienes, C4'–C3'–C9–C10 and C3–C4–C10–C9, with different orbital characteristics and different electron demands. In the second part, 1,2-biscoumarinylethenes were subjected for Diels-Alder reaction with different dienophiles like tetracyanoethylene, *N*-phenylmaleimide, maleic anhydride, and diethyl acetylene dicarboxylate to give different polycyclic compounds containing coumarin moiety.