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THESIS ABSTRACT

Utility of benzopyrones as building blocks to synthesize new heterocycles

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Background: Coumarin compounds are one of the most active classes of heterocyclic compounds. They play active roles in medicine due to their biological activity. These compounds are found in many natural products. **Materials and Methods:** The aim of the present work is to design and synthesize fused bicyclic and polycyclic ring systems via enamino derivatives incorporating benzopyrone moiety (coumarin structure). **Results**: Hydroxylochocarpin (a), lonchocarpin (b) and lonchocarpene (c) are used as anticancer reagents. Moracin D (d) used as an antifungal while cromakalim (e) produces anti-hypertensive effects and SD-8381(f) produces anti-inflammatory effects as a new cyclooxygenase inhibitor. Catechin (g) and epigallocatechin gallate [EGCG] (h) both represent antiallergic and anticancer effects, while KRH-102140 (i) is identified as a5-lipoxygenase (5-LO) inhibitor. Seseline (j) and xanthylein (k) exhibit anticancer activities. Rotenone (l) used as an anti-anaphylactic agent for treating asthma. Also dronabinol [Δ9-THC] (m) and other cannabinoids used for treating symptoms of cancer. Suksdorfin (n) inhibits the human immunodeficiency virus (HIV) while daleformis (o) inhibits the endothelin-converting enzyme. **Conclusion**: The synthesized bicyclic and polycyclic ring systems with coumarin structure possess significant biological activities.

Keywords: Anti-oxidants; Anti-tumor; Benzopyrones; Coumarin

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