

Synthesis, antioxidant, and antimicrobial activity of some new 5-fluoro-1*H*-indole-2-carboxamide hybrids

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ABSTRACT Some new 5-fluoro-1*H*-indole-2-carboxamide hybrids (**6a-g**) were synthesized by a multi-step synthetic route. A key step involved the formation of the amide bond between the indole-2-carboxylic acid and various aromatic amines in the presence of 1-ethyl-3-(3-dimethylaminopropyl)carbodiimide HCl/1-hydroxybenzotriazole. The pharmacological potential of the structurally elucidated series was established through diverse antioxidant (2,2-diphenyl-1-picrylhydrazyl [DPPH]/ferric reducing antioxidant power [FRAP]) and antimicrobial screening. Within the synthesized library, compound **6g**, emerged as the most potent radical scavenger, demonstrating antioxidant capacities (DPPH: 74.5 ± 0.01 ; FRAP: 3.198 ± 0.03) that rival the standard reference, ascorbic acid. Both **6g** and **6a** displayed a broad spectrum of action, successfully inhibiting diverse fungal pathogens alongside Gram-positive and Gram-negative bacteria. The SAR analysis confirms that electron-rich aryl substitutions are pivotal for optimizing bioactivity, positioning these fluorinated indole carboxamides as versatile scaffolds for future medicinal development.

KEYWORDS Indole, Carboxamide, Antioxidant, 2,2-Diphenyl-1-picrylhydrazyl, Ferric reducing antioxidant power, Antibacterial, Antifungal.

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