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Synthesis of four new analogous of 4,5-diaryl-imidazolyl-imidazole as selective COX-II inhibitors and anti cancer

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Background and objectives: In view of anti-cancer activity of celecoxib which is previously reported, a series of novel analogous compounds 4,5-diaryl-imidazolyl-imidazole were proposed and synthesized. We suppose novel compounds to be potent, selective cyclooxygenase II inhibitors with an anti-cancer effect on Caco-2 colorectal cancerous cell line.

4,5-Diaryl-imidazolyl-imidazole analogs can inhibit COX-II enzyme 4,5-diaryl-imidazolyl-imidazole analogs have anti-cancer effects on Caco-2 cells.

Methods: To Synthesis inhibitors, we started from alkyl amine hydrochloride and DHA. Imidazole alcohol was prepared. It's reaction with alkyl halide gave alkylthioimidazolealcohol. Oxidation of this with MnO_2 produced imidazolecarbaldehyde. Treatment of the latter with benzil and ammonium acetate gave the target. COX-II inhibitor assays by Cayman COX-II inhibitory screening assay kit. IC50 of these compounds were assayed by MTT test.

Results and discussion: The synthesized analogs are low potent inhibitors of COX-II and also low potent anti-cancer effect in comparison with celecoxib .

Conclusion: We conclude that with increasing selective inhibitory effects of COX-II, anti cancer effects of title compounds also increases.

Keywords: *COX-II, Celecoxib, Caco-2 colorectal cancer*