**ABSTRACT**

Coumarins are a class of compounds with benzopyrone ring system and constitute the core structure of a number of pharmacologically and biologically active compounds notably Warfarin. In the present work we synthesized new Coumarin derivatives with various substitutions and tested their biological potentials like their anti inflammatory, analgesic, antiulcer and antimicrobial activities. Title compound, Schiff base was synthesized with various aldehydes from thiazolyl hydrazine derivatives of 4-hydroxy-3-(3-oxo-1-phenylbutyl)-2H-chromen-2-one obtained by condensation and cyclization from brominated 4-hydroxy-3-(3-oxo-1-phenylbutyl)- 2H-chromen-2-one with thiosemicarbazide. The compounds were characterized by physical and spectral datas, Molecular docking, QSPR studies and pharmacological evaluation were carried out for all synthesized derivatives. The synthesized compounds possessing electron withdrawing group (-NO2) in phenyl ring exhibited good pharmacological activities when compared to that of other. The derivatives 4(b), 4(j) and 4(g) showed good anti-inflammatory activity by binding mostly with Thr 206, Ser 455and His 386 amino acids in the protein sequence. The nitro substituted derivative 4(a) showed significant analgesic activity. Derivatives 4(a), 4(b) and 4(j) showed significant antibacterial activity and derivatives 4(a) and 4(c) showed significant antifungal activity. The docking results were compared with the pharmacological activity of the synthesized compounds. Docking results and observed pharmacological activity results were in accordance with each other.

**Key words:** Coumarin; docking; anti-inflammatory; analgesic; antimicrobial; QSPR