**ABSTRACT**

2-acetyl-indane-1,3-dione was cyclized to pyrazoline derivatives after conversion to chalcone. Pyrazoline derivatives were converted to N-acetyl pyrazoline derivatives by acetylation reaction. The structures of the newly synthesized compounds were confirmed by FT-IR, 1H NMR and Mass pectroscopy. Both the pyrazoline and N-acetyl pyrazoline derivatives were evaluated for Analgesic, Antiinflammatory, Antimicrobial activities. Compounds having electron withdrawing group on phenyl ring of pyrazoline nucleus possess good antimicrobial and anti-inflammatory activity. Mainly the acetylated derivatives have more effect than that of non acetylated derivatives. This may be due to the presence of carbonyl group which may be responsible for the increase in activity which may be due to hydrogen bond formation. It can also be confirmed by docking studies on COX-2 receptor using Molegro Virtual Docker. It also shows that the hydrogen bond was more for the acetylated product than the non acetylated one.

**Keywords:** Analgesic/ Anti-inflammatory/ Antimicrobial screening/ Chalcone

Pyrazoline/ Docking