

## Comparative Study on the *in vitro* Antibacterial Efficacy of Aqueous and Methanolic Extracts of *Quercus infectoria* Gall`s Against *Cellulosimicrobium cellulans*

### ABSTRACT

The *in vitro* antibacterial efficacy of aqueous and methanolic extract of *Quercus infectoria* Olivier (Fagaceae) galls was tested against *Cellulosimicrobium cellulans* using extract concentration ranging from 0.25 to 4 mg mL<sup>-1</sup>. Both types of extract showed significant inhibition of *C. cellulans* growth with strong correlation between extract concentrations and degrees of antibacterial activity for concentrations ranging from 0.5 to 4 mg mL<sup>-1</sup>. Although, slight reduction of average diameter of inhibition zones after 24 h of incubation for aqueous extract ( $0.96 \pm 0.148$  cm) compared to methanolic extract ( $1.00 \pm 0.182$  cm), both extracts still attained the MIC value beginning at a concentration of 0.5 mg mL<sup>-1</sup> but established higher concentration for the MBC at 2 mg mL<sup>-1</sup>. The antibacterial activity of methanolic extract was also significantly affected by the temperature with an optimum inhibition zone being obtained at 30 °C ( $1.38 \pm 0.05$  cm) and this was reduced to approximately 20% at temperatures of above 50 °C.

**Keyword:** Antibacterial, aqueous extract, *Cellulosimicrobium cellulans*, methanolic extract, *Quercus infectoria*