# **Titre d’article**: Antibacterial activity of Cladanthus arabicus and Bubonium imbricatum essential oils alone and in combination with conventional antibiotics against Enterobacteriaceae isolates

**Abstract :**

Multidrug-resistant bacteria have become common all over the world, necessitating the development of new therapeutic strategies. Synergistic interactions between conventional antibiotics and natural bioactive may have therapeutic benefits in a clinical setting. There are plenty of medicinal plants that have proven efficacy against broad spectrum of micro-organisms. The aim of the work was to assess the antibacterial activity of Cladanthus arabicus, a Moroccan medicinal plant, and Bubonium imbricatum, a Moroccan endemic plant. The evaluation of the synergistic effect of extracted essential oils (EOs) together with some conventional antibiotics was also investigated. Checkerboard test was used to evaluate the interaction of EOs in combination with amoxicillin and neomycin. The results showed that EOs contain a potent activity against the tested Enterobacteriaceae isolates, with inhibition zones values in the range of 805 01 and 131 011 mm and MIC values between 200 lg ml1 to 800 lg ml1 for C. arabicus and from 400 lg ml1 to 1600 lg ml1 for B. imbricatum, respectively. Moreover, the current study allowed concluding that both EOs showed not only satisfactory antibacterial properties but also active effects combined with conventional antibiotics demonstrated by the Fractional Inhibitory Concentration Index (FICI). These findings are very interesting since there are no previous studies on synergistic interactions of these two plants with antibiotics.