

**Antimicrobial, antibiofilm and antitumor activities of essential oil  
of *Agastache rugosa* from Xinjiang, China**

**Abstract**

In the study, we evaluated chemical composition and antimicrobial, antibiofilm, and antitumor activities of essential oils from dried leaf essential oil of leaf and flower of *Agastache rugosa* for the first time. Essential oil of leaf and flower was evaluated with GC and GC–MS methods, and the essential oil of flower revealed the presence of 21 components, whose major compounds were pulegone (34.1%), estragole (29.5%), and p-Menthan-3-one (19.2%). 26 components from essential oil of leaf were identified, the major compounds were p-Menthan-3-one (48.8%) and estragole (20.8%). At the same time, essential oil of leaf, there is a very effective antimicrobial activity with MIC ranging from 9.4 to 42  $\mu\text{g ml}^{-1}$  and potential antibiofilm, antitumor activities for essential oils of flower and leaf essential oil of leaf. The study highlighted the diversity in two different parts of *A. rugosa* grown in Xinjiang region and other places, which have different active constituents. Our results showed that this native plant may be a good candidate for further biological and pharmacological investigations.