

**ESSENTIAL OILS AND BIOACTIVITIES OF**  
*Citrus hystrix*

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## ABSTRACT

### ESSENTIAL OILS AND BIOACTIVITIES OF *Citrus hystrix*

The chemical compositions of the essential oils from the fresh pulps, peels and leaves of *C. hystrix* and their antioxidant and antibacterial activities were studied. The essential oils were extracted by hydrodistillation technique and analysed by using gas chromatography-mass spectrometry (GC-MS). The antioxidant activity was performed using DPPH radical scavenging assay, while antibacterial activity applied disc diffusion method. A total of 43 (92.8%), 35 (98.1%) and 36 (95.1%) compounds were identified in the pulps, peels and leaves oils, respectively. The main groups in the pulps oil were oxygenated monoterpenes (43.8%) and monoterpene hydrocarbons (36.7%). The peels oil was comprised of oxygenated monoterpenes (45.6%) and monoterpene hydrocarbons (45.3%) as the major groups, while the leaves oil was dominated by oxygenated monoterpenes (75.4%). The pulps oil was rich in  $\alpha$ -terpineol (15.9%),  $\beta$ -pinene (12.8%), *cis*-linalool oxide (furanoid) (9.0%) and terpinen-4-ol (8.2%), while the peels oil composed of  $\beta$ -pinene (18.2%), limonene (16.8%) and terpinen-4-ol (10.7%) in high amount. Citronellal (49.0%) was the most abundant compound in the leaves oil. Screening on the antioxidant activity revealed that none of the essential oils exhibited DPPH radical scavenging activity. The leaves and peels oils showed the strongest antibacterial activity against *Staphylococcus aureus* with inhibition zones 19.33 and 18.33 mm, respectively. The pulps oil inhibited the growth of *Escherichia coli* with the highest inhibition zone (13.00 mm).