# Chemical composition of essential oils from leaf extract of Pandan, Pandanus amaryllifolius ROXB


## ABSTRACT

Pandan or Pandanus amaryllifolius, an aromatic tropical plant species, has gained much interest among researchers in the quest to develop further use of its essential oils beyond food flavoring, traditional medicines and limited food industries. There has been lack of comprehensive investigations on therapeutic activities of its essential oils (EOs) that may have potential use as therapeutic agents in the treatment of various health issues. The present investigation reports on the chemical composition of EOs from leaf extracts sourced from three different locations in Peninsular Malaysia. Leaf extracts of P. amaryllifolius were drawn out from leaves of plants grown in the states of Kedah, Selangor and Johor using Soxhlet extraction method with ethanol as the solvent resulting in extraction yields of 21.08%, 20.54%, and 15.87%, respectively. The leaf extracts were further analyzed by gas-chromatography-mass spectrometry (GC-MS) and Fourier transform-infrared spectroscopy (FTIR). A total of 57 chemical compounds were identified comprising of fatty acids, steroids, aromatic compounds and non-polar components making up 80.49-84.74% of total oils. A total of 11 common peaks were determined consisting of pyranone (0.78-1.74%); coumaran (1.12-5.31%); 1,4-di-tert-butylphenol (2.68-6.10%); pinane (0.80%-1.46%); ethyl palmitate (1.04%-1.66%); 3,6,6-trimethyl-1- (1-phtalazinyl)-1,5,6,7-tetrahydro-4H-indazol-4-one (0.75-1.69%); phytol (1.43-6.19%); purpurogallin (1.34-2.02%); squalene (14.14-33.83%); decamethyltetrasiloxane (0.27-0.52%); and vitamin E (2.58-3.66%) from the three different locations. Stigmasterol was not detected from plants sourced in Selangor but was detected in samples from Kedah and Johor with an amount of 6.73% and 9.05%, respectively. There were 16 common peaks observed in all IR spectra from the three plants' sources exhibiting functional groups. The findings from the study present useful additional information to existing literature on extractable EOs from pandan for potential use in pharmaceutical or nutraceutical applications in the production of functional food.



**Keyword:** Pandanus amaryllifolius; Chemical composition; Essential oils; Functional group