

**Title** Monitoring volatile compounds emitted by durian pulp (*Durio zibethinus* Murr.) at mature and ripe stage using solid phase microextraction (SPME)

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#### **Abstract**

Volatile compounds emitted by the pulp of 'Mon Thong', a commercial cultivar of durian, were analyzed by solid phase microextraction (SPME) technique and gas chromatography-mass spectrometry (GC-MS). The volatiles were monitored using SPME fibers coated with PDMS/DVB for 30 min. and identified by their mass spectra. Mature durian pulp emitted 17 volatiles: 1 aldehyde, 2 alcohols, 4 sulfurs and 10 esters. Ripe durian pulp emitted 19 volatiles: 1 aldehyde, 2 alcohols, 5 sulfurs and 11 esters. Relative concentrations of total volatiles in air were 11.3 and 43.3  $\mu\text{l/L}$  for one gram mature and ripe durian pulp, respectively. Ethyl acetate, ethyl propanoate and ethanol were the most abundant compounds emitted by mature durian pulp, whereas ethyl propanoate and ethyl 2-methylbutanoate were the major compounds for ripe durian pulp. The mixture of esters, sulfur-containing compounds and alcohols resulted in odor characterization of durian at each maturity stage. The total concentrations of alcohols, esters and sulfurs detected in air were 2.2, 7.8 and 0.45  $\mu\text{l/L}$  for one gram mature durian pulp, respectively. The total concentrations of alcohols, esters and sulfurs detected in air were 3.4, 33.4 and 3.0  $\mu\text{l/L}$  for one gram ripe durian pulp, respectively. The difference in quantification of volatile compounds resulted in different odor characterization of mature and ripe durian. The Mature durian was perceived as having fruity odor from a high content of alcohols and esters, while the ripe durian was distinguished by stronger fruity and sulfury notes contributed by a high content of esters and sulfur-containing compounds.