GC and GC-MS analysis of essential oils obtained from the hydrodistillation technique by using Dean-stark apparatus of fresh stems and fruits of *Piper maingayi* Hk resulted in the identification of 34 and 18 components accounting for 83.6% and 80.4% of the total amount, respectively. Sesquiterpenes of both hydrocarbons and oxygenated, were the most highly represented classes as the former ranging from 64.7% to 70.7%, and the latter varying from 7.4% to 8.6%. The main constituents of stems essential oil were: β-caryophyllene (26.2%), α-cedrene (8.4%), caryophyllene oxide (6.7%) and cis-calamenene (6.2%), while the fruits essential oil was dominated by δ-cadinene (22.6%), β-caryophyllene (18.8%), α-copaene (11.2%) and α-cadinol (7.1%). The essential oils result of stems and fruits of *P. maingayi* Hk. were compared with the previous result from the leaves of the same species and proved the dominant constituents of essential oils from all three parts was the β-caryophyllene ranging from 18.8% to 39.6%.