Activity of methanolic extract fractions from *Litsea cubeba* fruit waste to inhibit proliferation and induce apoptotic cell death in human cervical cancer cells (HeLa)

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*Litsea cubeba* is a native edible and medicinal plant in China and South East Asia. The fruit is an important essential oil source. However, utilization of the fruit waste after essential oil extraction was not yet reported. This study aims to evaluate potential of this organic waste to inhibit HeLa cell proliferation and induce apoptotic cell death. Fruit waste was extracted by methanol after non-polar part was removed by hexane extraction. The methanolic extract was fractionated by XAD-7 column chromatography using 20-100% methanol as mobile phases to obtain 9 fractions. Fractions 4B (eluted by 80% methanol), 5A, 5B and 5C (eluted by 100% methanol) showed activity against viability of HeLa cells investigated by WST-8 assay and IC₅₀ value were 22.81, 8.36, 8.06 and 22.04 μg/mL, respectively. Indicated by measurement of Bromodeoxyuridine incorporated into newly synthesized DNA of replicating cells after treatment of all fractions (10 μg/mL), fraction 5A and 5B could completely inhibit HeLa cells proliferation while 4B and 5C could reduce the cell proliferation to 19.25% and 44.56%. Cell death was exhibited by quantitating Lactate dehydrogenase leakage into culture medium supernatant compared to 100% release by treatment with Triton-X-100. IC₅₀ of fraction 4B, 5A, 5B and 5C were 50.33, 15.21, 31.44 and 805.20 μg/mL. Apoptotic bodies were visually observed by fluorescent microscopy after treatment with each fraction (25 μg/mL) and stained with 4′,6-diamidino-2-phenylindole. Mentioned results suggested that the organic waste from *L. cubeba* possesses potential for anti-cancer application that the active compounds should be further identified.