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Cytotoxic activity of eurycoma longifolia jack root extract against nasopharyngeal carcinoma cell line

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Abstract

Background: Eurycoma longifolia (E. longifolia) or Tongkat Ali is a tree that grows in southeast Asia, the roots of which contain bioactive components that exhibit cytotoxic properties against various cancer cell lines. However, no study has been conducted to relate the cytotoxic properties against nasopharyngeal carcinoma (NPC), a type of cancer that shows poor prognosis for metastatic disease. The purpose of this study was to determine whether the E. longifolia root extract exerts cytotoxic activity against nasopharyngeal carcinoma (ORL-115) cell lines. Materials and Method: E. longifolia root extracts were obtained through Soxhlet extraction method and by using two different solvents; ethanol and dicholoromethane. MTS assay was used to evaluate the cytotoxic effect of the root extracts against ORL-115 cell line for three different incubation time which were 24-hour, 48-hour and 72-hour. Results: Ethanol extract was significantly more potent compared to DCM extract. Ethanol extract exhibited lower IC_{50} value compared to DCM extract. The IC_{50} of ethanol extract were 232.1 µg/ml, 66.86 µg/ml and 42.6 µg/ml. Meanwhile the IC_{50} of DCM extract were 678.87 µg/ml, 136.71 µg/ml,

73.72 µg/ml for 24-hour, 48-hour and 72-hour incubation period respectively. The cytotoxic activity of both extracts increased as the incubation time prolonged. The cytotoxic activity of ethanol extract at each incubation time was significantly different from DCM extract except at 72 hours. Conclusion: E. longifolia root extracts exerted cytotoxic activity against the nasopharyngeal carcinoma (ORL-115) cell line. Ethanol extract exhibited lower IC_{50} value compared to DCM extract. The cytotoxic activity of both extracts were dose dependent and time dependent.

Author keywords

Cytotoxic activity; E. longifolia; Nasopharyngeal carcinoma

SciVal Topics

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