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Anticancer potential of essential oils derived from fruit of leaf of cucumis sativus**Odetayo Ismail**

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The medicinal values of a plant lie in its phytochemical constituents which produce the definite physiological actions on the human body. *Cucumis sativus* Linn (Cucurbitaceae) was used in ancient times to dissolve stones caused by uric acid. They have been known to cure some headaches, bleeding, dizziness, and pale skin. There are little reports available on the phytochemical composition and bioactivities of essential oils of the plant. The present study was aimed to extract, characterise, and to evaluate the cytotoxicity activity of the fruit and leaf essential oils of *Cucumis sativus*. Fresh leaves of *Cucumis sativus* were collected. The fresh leaves and the fruits were washed with water to exclude contaminants. Each of them was then weighed separately. Essential oil extractions were carried out by the use of an all-gas Clevenger-type apparatus. About 113.57 g of leaf and 1263.97 g of fruit were crushed and hydro-distilled for 3 hours. About 2.0 ml of distilled n-hexane were used to extract the essential oils. The oils were then stored in vials and refrigerated. Gas Chromatographic-Mass spectrometry (GC-MS) analyses of the essential oils were performed on an Agilent Technologies-7890. Gas chromatograph equipped with an Agilent Technologies 5975, USA. The Brine Shrimp Lethality Assay was also carried out using different concentrations which include 1000, 100, and 10 µg/ml. (each test in triplicate). After 24 hours, the results of the mortality of the nauplii were recorded. The raw data was transformed into LC50 using the SPSS and Finney probit software. The yield of the fruit and leaf essential oils were 0.18% and 0.19% respectively. Seventy-seven compounds in fruit which amounts to 88.82% and thirteen compounds in leaf yielded 72.9%. The major constituents of the fruit essential oil were caryophyllene, ethyl linoleate (8.56%), pentadecanal (7.87%), (E)-6-nonenol (7.18%), phytol (5.81%) and heneicosane (4.83%). Leaf oil comprises of Cholesterol (25.75%), dioctyl phthalate (10.24%), butylheptadecyl sulfite (5.77%), heptadecane (5.22%) and cetene (5.02%) in abundance. Several terpenoids were characterised in the fruit essential oil, having a total yield of 31.45%. The fruit essential oil consists mainly of sesquiterpenoids with a total yield of 25.46%. The diterpenoid and monoterpenoid yield is 5.81% and 0.18% respectively. In the leaf oil, no terpenoid was characterised. The Lethality Concentration (LC50) of *Cucumis sativus* fruit and leaf essential oils were 10.000 µg/ml and 5.527 µg/ml respectively. The identified compounds in the essential oils in the plant are responsible for their reported bioactivities. The high toxicity of the fruit and leaf essential oils suggest the need for further toxicological studies. However, it will be very necessary to also carry out cancer cells line assay and also the isolation of the cytotoxic compounds to ascertain anti-cancer potentiality.

Biography

Odetayo Ismail is a researcher at the University of Ibadan, Nigeria, specializing in the bioactivity and medicinal properties of plant-derived compounds. His recent work focuses on the anticancer potential of essential oils extracted from the fruit and leaves of *Cucumis sativus* (cucumber). Odetayo's research includes the extraction, characterization, and evaluation of the cytotoxic effects of these oils, using advanced techniques like Gas Chromatography-Mass Spectrometry (GC-MS) and Brine Shrimp Lethality Assay. His findings suggest significant bioactivity, with potential applications in cancer treatment, and highlight the need for further studies to explore the specific cytotoxic compounds and their mechanisms of action.