

# Comparative Study of Onion (*Allium cepa*) and Leek (*Allium ampeloprasum*): Identification of Organosulphur Compounds by UPLC-QTOF/MS and Anticancer Effect on MCF-7 Cells

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## ABSTRACT

Onion (*Allium cepa*) and leek (*Allium ampeloprasum* var. *porrum*) are common herbs and vegetables found in our daily life. It belongs to the genus *Allium*, which is usually known for their high antioxidant and anticancer properties. Medical researchers highly recommend the exploitation of herbs and plants as alternative ways in the treatment of cancer. This research was designed to study the anticancer effects of onion and leek extracts on MCF-7 human breast cancer cell. Crude extracts of ethanol, methanol, and water of onion and leek were obtained by maceration. MCF-7 cells were cultured in complete media at 37 °C and subjected to different treatments that involved varying concentrations (10, 50, and 100 µg/mL) of onion and leek extracts for 24, 48, and 72 h of incubation. The percentage of cell viability and the concentration of extracts on MCF-7 cells were determined using MTT assay. The water leek extract proved to be the most effective extract at 50 µg/mL, whereby it showed a significant inhibition ability due to the presence of entadamide A-β-D-glucopyranoside as identified by ultra-performance liquid chromatography-quadrupole/time-of-flight mass spectrometry (UPLC-QTOF/MS). Further studies about the mechanism of both extracts in causing cell death and the determination of the presence of other bioactive compounds in the extracts are needed.

## KEYWORDS

Onion (*Allium cepa*); Leek (*Allium ampeloprasum*); Organosulphur compounds; UPLC-QTOF/MS; anticancer; MCF-7 cells

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