



Isolation and identification of compounds from toxic fractions of *Cuminum cyminum* extract

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Background and objectives: *Cuminum cyminum* from Apiaceae family is a common medicinal plant. The fruits of this plant are the second most popular spice after *Piper nigrum* in the world. It is used in cooking as flavoring and also it has been used for treatment of toothache, epilepsy, diarrhea, emphysema and gastrointestinal problems in Iranian traditional medicine. In this study, toxicity of various fractions of *C. cyminum* fruits was evaluated and compounds of toxic fraction(s) were isolated and characterized. **Methods:** Ripe fruits of *C. cyminum* were extracted with 80% methanol and fractionated by hexane, chloroform, ethyl acetate and methanol. The toxicity of different fractions was evaluated on *Artemia salina*, brine shrimp lethality test. This test has been used to evaluate the toxicity of different types of plant extracts, heavy metals, pesticides, food additives and medicinal compounds and has been provided by US National Cancer Institute. Toxic fraction was subjected for further elucidation. **Results:** The toxicity evaluation showed that hexane and ethyl acetate fractions demonstrated the highest lethality at 100 µg/mL with 62.43 and 58.74 percent, respectively. Four flavonoids including apigenin, luteoline, apigenin-7-*O*-glycoside and luteoline-7-*O*-glycoside were separated from ethyl acetate fraction and cuminoid A was isolated and identified from the hexane fraction as the compounds of active subfractions. **Conclusion:** It was concluded that flavonoids from ethyl acetate fraction and a sesquiterpene from the hexane fraction of *Cuminum cyminum* could be introduced as cytotoxic compounds.

Keywords: brine shrimp, *Cuminum cyminum*, flavonoids, sesquiterpene