

عنوان مقاله:

In vitro Anticancer Evaluation of Saponins Obtained From *Spirulina platensis* on MDA, HepG2, and MCF7 Cell Lines

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خلاصه مقاله:

Introduction: Microalgae are known for their bioactive compounds with potential applications as antimicrobial, antiaging, and anticancer activities. *Spirulina platensis* (*S. platensis*) is a filamentous and photosynthetic microorganism that has 25 kinds of vitamins and minerals that contain many compounds with biotic activity such as alkaloids, phenolic compounds, terpenoids, and saponins. Saponins are mainly present in plants; while there are few studies about their role in microalgae. This study aims to investigate the anticancer potential of extracted saponins from *S. platensis*. **Methods:** Saponins were extracted; using distilled water and n-butanol. The total extracted saponin was dried and weighed. The cellular viability of HepG2, MCF-7, and MDA-MB-123 cell lines was evaluated; using MTT assay after 24 h treatment with 0.02-2 mg/ml of saponins extracted from *S. platensis*. Morphology of cell lines was evaluated by invert microscopy. **Results:** Total saponin extracted from *S. platensis* was estimated at 28 ± 0.0005 mg/g dry wt. Thin-layer chromatography profiles showed four bands for saponins with Rf values of 0.44, 0.48, 0.50, and 0.55. The cytotoxic activity after 24 h treatment with 0.02-2 mg/ml of saponins was a concentration-dependent manner. The highest toxicity of saponins with $IC_{50}=0.22$ mg/ml was observed in MDA-MB-123 cells. In HepG2 and MCF-7 cells IC_{50} value was obtained in 0.35 mg/ml and 0.4 mg/ml, respectively. **Conclusions:** This is the first report to evaluate the anticancer effects of saponins from *S. platensis* in liver and breast cancers. The result showed that saponins from *Spirulina* decrease cancer cellular viability. Therefore, these compounds can be a candidate for anticancer agents.

کلمات کلیدی:

Microalgae, Antineoplastic Agents, Saponins, *Spirulina*, Chromatography, Thin Layer

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