

عنوان مقاله:

Investigating the anti-apoptotic effect of sesame oil and honey in a novel nanostructure form for treatment of heart failure

محل انتشار:

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خلاصه مقاله:

Objective(s): Sesame oil is a lipophilic compound and has low aqueous solubility and low oral bioavailability. It is possible to enhance sesame oil solubility in aqueous media by applying the microemulsion system in the form of oil-in-water. In this study, the anti-cholesterol and anti-Apoptotic effects of a new combination of sesame oil and honey in a microemulsion form for cardiac muscle cells Apoptosis treatment were investigated. Materials and Methods: Two different formulations were prepared. Tween 80 was used as the main surfactant in both formulations. In the first formulation, glycerin was applied as co-surfactant. Span 80 was applied as a mixed surfactant in the second formulation. Results: Characterization results showed that the average size of droplets of microemulsion samples were in the range of 16.6 ± 0.1 - 64.6 ± 0.2 nm with a poly dispersity index (PDI) value of less than 0.5. No turbidity and phase sedimentation were observed in certain samples in a period of 6 months after the preparation, which confirmed the high stability of samples. The in-vivo results in Wistar male rats with heart failure showed that applying sesame oil and honey in the microemulsion form caused a significant reduction in the Apoptosis level. In addition, favorable therapeutic effects for microemulsion administration was observed in comparison to the Atorvastatin drug consumption. Furthermore, the protective effect of microemulsion dosage was more obvious with increasing the oil percentage and adding honey as a hydrophilic additive. Conclusion: Results confirmed that the new formulation containing sesame oil and honey as natural components with nano particle size could be useful for cardiac muscle cells Apoptosis treatment.

کلمات کلیدی:

Sesame oil, Microemulsion, Apoptosis, Cardiac muscle cells, In-vivo performance

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