

عنوان مقاله:

Topical green tea formulation with anti-hemorrhagic and antibacterial effects

محل انتشار:

مجله علوم پایه پزشکی ایران، دوره 23، شماره 8 (سال: 1399)

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خلاصه مقاله:

Objective(s): Potentially preventable death from uncontrolled hemorrhage clearly indicates the importance of simple, fast and efficient ways to achieving hemostasis. The aim of this study was to develop a topical formulation of green tea extract for reducing bleeding that can be helpful in hemorrhage control. Materials and Methods: Hydroalcoholic extract of green tea was isolated from *Camellia sinensis* and formulated in polyvinyl alcohol (PVA) to achieve two concentrations of 2% and 4% v/v. Folin-Ciocalteu assay was used to determine the total amount of tannins in extract. Rheological behavior of solutions was investigated by measuring viscosity at shear rates of 0–200 sec⁻¹. Quantitative and qualitative microbial limit tests and minimum inhibitory concentration (MIC) assay were done. The effect of formulations on bleeding time was evaluated in an animal model. Results: The total amount of tannin in green tea extract was 3.8% w/w and addition of green tea significantly increased the viscosity of PVA. The results of MIC assay showed that PVA could not inhibit the growth of bacteria, while, 716 µg/ml of green tea and 2860 µg/ml of green tea/PVA 4% inhibited the growth of *Staphylococcus aureus* and *Pseudomonas aeruginosa*. In an animal study both 2% and 4% formulations were able to stop hemorrhage approximately at an equal time compared with tranexamic acid (TXA) 50 mg/ml as a control and the lowest bleeding time was 6.4±0.51 sec for green tea/PVA 4%. Conclusion: Based on our results, the topical formulation of green tea extract in PVA has a great potential for anti-hemorrhage applications.

کلمات کلیدی:

Bleeding, green tea, hemostasis, Polyvinyl alcohol, Tannin, Topical formulation

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