


## Abstract

# Preparation and Evaluation of Cucumber Seed Extract Sunscreen <sup>†</sup>

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<sup>†</sup> Presented at the 8th International Electronic Conference on Medicinal Chemistry, 1–30 November 2022;

Available online: <https://ecmc2022.sciforum.net/>.

**Abstract:** Cucumber seeds are the seeds of Cucumber (*Cucumis sativus* L.), which include a large number of essential fatty acids, plant sterols, glycosides, volatile oils, as well as Ca, Mg, and other inorganic elements. Cucumber seed oil has good UV absorption effect because it is rich in an unsaturated functional group structure. Plant sterol in cucumber seed oil shows strong permeability toward the skin, which promotes skin metabolism and inhibits skin inflammation.  $\beta$ -sitosterol in plant sterols can also effectively protect the peroxide of low-density lipoprotein, so they have an antioxidant effect. In this study, cucumber seed oil was extracted by the Soxhlet extraction method as plant-based sunscreen, in which cucumber seed oil was used as the main component, and an appropriate amount of titanium dioxide was used as an antioxidant. Taking the settling solvent ratio as the index, the orthogonal experiment was designed to determine the prescription composition of the pure matrix. Then the single factor experiments of cucumber seed oil, titanium dioxide, and vitamin E were carried out. The effects of three components on UV absorption were investigated by orthogonal experiments, and the optimum formula with cucumber seed oil as the main component was finally determined and verified. In conclusion, our plant sunscreen was produced by cucumber seed oil as raw material instead of hormone. There was no harm to the skin. It has the potential to develop plant-based sunscreen with cucumber seed oil and provides a reference for the development of plant sunscreen and skin care products.

**Keywords:** cucumber seed oil; plant sunscreen; UV absorption value



**Citation:** Wang, X.; Teng, M.; Pan, X.; Yang, X. Preparation and Evaluation of Cucumber Seed Extract Sunscreen. *Med. Sci. Forum* **2022**, *14*, 47. <https://doi.org/10.3390/ECMC2022-13314>

Academic Editor: Maria Emília Sousa

Published: 1 November 2022

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**Supplementary Materials:** The following are available online at <https://www.mdpi.com/article/10.3390/ECMC2022-13314/s1>.

**Author Contributions:** Conceptualization, X.P. and X.Y.; methodology, X.P. and X.Y.; experiment, M.T.; validation, X.W.; writing—original draft preparation, X.W.; writing—review and editing, X.P.; supervision, X.P. and X.Y. All authors have read and agreed to the published version of the manuscript.

**Funding:** This study was supported by National Natural Science Foundation of China (82160651); The Open Project of State Key Laboratory of Natural and Biomimetic Drugs, Peking University (K202103); The Open Project of Key Laboratory of Xinjiang Phytomedicine Resource and Utilization, Ministry of Education (XPRU202004); Youth Innovative Talent Cultivation Projects of Shihezi University (CXPY202005) and The Open Sharing Fund for the Large-scale Instruments and Equipments of Shihezi University.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Not applicable.

**Data Availability Statement:** The data presented in this study are available in the article.

**Conflicts of Interest:** The authors declare no conflict of interest.