



ASTAXANTHIN AS AN INNOVATIVE ANTIOXIDANT: CREATION AND STUDY OF SERUM WITH HAEMATOCOCCUS PLUVIALIS EXTRACT

Yesimkhan Zh.K.

Alimova U.S.

JSC "Kazakh National Medical University named after S.D. Asfendiyarov"

Almaty, Republic of Kazakhstan

tel.: +77770651004, e-mail: esimhan.zhibek@yandex.ru

<https://doi.org/10.5281/zenodo.17343961>

Relevance: Interest in natural antioxidants is growing in cosmetology. Astaxanthin from the microalgae *Haematococcus pluvialis* is more active than many known antioxidants and can protect the skin from photoaging and oxidative stress. Research into the development of stable and safe formulas is needed to incorporate it into cosmetics.

Objective: To develop the composition of serum with *Haematococcus pluvialis* extract and to evaluate its safety and stability.

Methods: The serum was developed taking into account the physicochemical properties of astaxanthin. The extract was standardized for its active ingredient content, and safety and storage stability testing were conducted.

Results: A serum formulation was developed with a uniform distribution of *Haematococcus pluvialis* extract, containing the biologically active carotenoid astaxanthin. The included auxiliary components ensured optimal consistency, ease of application, and preservation of the active ingredient.

Conducted studies have shown no irritating or sensitizing effects, confirming the product's safety for various skin types, including sensitive skin. Clinical studies have demonstrated good tolerability and a comfortable sensation after use.

The samples remained stable for several months under standard storage conditions: no changes in color, odor, viscosity, precipitation, or loss of active ingredient activity were observed. This demonstrates the reliability of the developed formula and its technological stability.

Conclusions: The serum with *Haematococcus pluvialis* extract possesses pronounced antioxidant potential, making it a promising treatment for preventing photoaging and protecting skin from the negative effects of environmental factors. The results confirm the safety, stability, and efficacy of the proposed composition, opening the door to further in-depth clinical trials and commercialization.