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A Hydrophilic Interaction Liquid Chromatography Method For The Quantitation Of Acetyl Hexapeptide-8 In Cosmeceuticals.

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Abstract

The incorporation of bioactive ingredients in the preparation of cosmetics is gaining popularity, over the past fifty years, so as to deliver a biologic activity in support of cosmetic claims to provide beneficial topical actions. Cosmeceuticals were made possible by the increased understanding of skin physiology. Peptide cosmeceuticals is a new and popular option to treat aging skin as secondary benefit of research on wound healing as far back as the 1930s, when yeast extracts have been used in medications for their enhancement of wound healing. However, the use of engineered proteins possessing biological activity is novel. There is a real need to set up analytical methods in order to quantitate the active compounds in cosmeceuticals. The aim of this work was on the use of hydrophilic interaction liquid chromatography method for the quantitation of acetyl hexapeptide-8 in cosmetic products. Acetyl hexapeptide-8 mimics the N-terminal end of the SNAP-25 protein. It competes with the natural protein for a position in the SNARE complex, which is essential for muscle contraction. The anti-wrinkle effects of acetyl hexapeptide-8 are similar to those of botulinum neurotoxin. Hydrophilic interaction liquid chromatography combines the characteristics of the 3 major methods in HPLC: reversed phase, normal phase and ion chromatography. The functional group of the Xbridge®-HILIC BEH analytical column used in this work consists of BEH particles containing a sufficient number of accessible silanols on the surface. Chromatographic separation was achieved on a BEH XBridge®-HILIC analytical column with a mobile phase that was composed of a 30% 20mM ammonium formate water solution in acetonitrile and pumped at a flow rate of 0.25 mL min-1. UV detection of acetyl hexapeptide-8 was achieved at 225 nm. Sample preparation was based on dilution of the cosmetic cream into the mobile phase prior to their injection into the HILIC-UV system. The proposed HILIC method has been evaluated over the linearity, precision, accuracy and specificity and proved to be convenient and effective for the determination of acetyl hexapeptide-8 in cosmetic creams.

Biography:

Athanasia Varvaresou is the Director of the Division of Aesthetics and Cosmetic Science of the Department of Biomedical Sciences in University of West Attica, Athens, Greece and Professor in Cosmetic Science. She is graduate from the School of Pharmacy, University of Athens. Her PhD is in synthesis and biological evaluation of xanthene derivatives used in cosmetics. She worked as a post-doctoral research fellow in the University of Athens from 1996 till 2002. She is a reviewer for scientific journals. Her research interests are: Development of anti-aging cosmetics, efficacy tests of cosmetics and synthesis and structure elucidation and analysis of bioactive compounds.

Speaker Publications:

1. Mahairas G, Panderi I, Geballa-Koukoula A, Rozou S, Antonopoulos N, Charitos C, Vonaparti A (2018) Development and validation of a hydrophilic interaction liquid chromatography method for the quantitation of impurities in fixed-dose combination tablets containing rosuvastatin and metformin. Talanta, 183, (131-141).

2.Giannakou M, Varvaresou A, Kyriazopoulos E, Papageorgiou S, Kavallou E, Panderi E (2018) Quantification of oligopeptide-20 and oligopeptide-24 in cosmetic creams using hydrophilic interaction liquid chromatography/electrospray ionization mass spectrometry. Journal of Separation Science, 1(1) 1-9.

3. Raikou V, Varvaresou A, Panderi I, Papageorgiou E (2017) The efficacy study of the combination of tripeptide-10-citrulline and acetyl hexapeptide-3. A prospective, randomized controlled study. Journal of Cosmetic Dermatology, 16(2), 271–278.

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