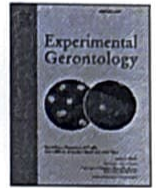




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Review article

Dietary phytochemicals alleviate the premature skin aging: A comprehensive review

Harpreet Singh ^{a,*}, Y.T. Kamal ^b, Jessica Pandohee ^c, Arun Kumar Mishra ^{d,**}, Aritra Biswas ^e, Sourav Mohanto ^f, Arvind Kumar ^g, Sagnik Nag ^g, Amrita Mishra ^h, Mhaveer Singh ⁱ, Himanshu Gupta ^j, Hitesh Chopra ^k

^a School of Pharmaceutical Sciences, IFTM University, Moradabad, Uttar Pradesh 244102, India

^b Department of Pharmacognosy, College of Pharmacy, King Khalid University, Abha 611441, Saudi Arabia

^c Sydney Mass Spectrometry, University of Sydney, Camperdown, New South Wales 2006, Australia

^d SOS School of Pharmacy, IFTM University, Moradabad, Uttar Pradesh 244102, India

^e Department of Microbiology, Ramakrishna Mission Vivekananda Centenary College, Rahara Akhil Mukherjee Road, Khardaha, West Bengal 700118, India

^f Department of Pharmaceutics, Yenepoya Pharmacy College & Research Centre, Yenepoya (Deemed to be University), Mangalore, Karnataka 575018, India

^g Jeffrey Cheah School of Medicine and Health Sciences, Monash University Malaysia, Jalan Lagoon Selatan, 47500 Bandar Sunway, Selangor, Malaysia

^h School of Pharmaceutical Sciences, Delhi Pharmaceutical Sciences and Research University, New Delhi 110017, India

ⁱ Pharmacy Academy, IFTM University, Moradabad, Uttar Pradesh 244102, India

^j Department of Chemistry, School of Sciences, IFTM University, Moradabad, Uttar Pradesh, India

^k Department of Biosciences, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences, Chennai 602105, Tamil Nadu, India

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ABSTRACT

Skin aging, often called as premature skin aging, is the hastened deterioration of the skin resulting from multiple factors, including UV radiation, environmental contaminants, inadequate nutrition, stress, etc. Dietary phytochemicals, present in fruits, vegetables, and other plant-derived meals, have gained interest due to their efficiency to eradicate free radicals and lowering the release of inflammatory mediators which accounts for premature skin aging. Several dietary phytochemicals, i.e., carotenoids, polyphenols, flavonoids, terpenes, alkaloids, phytosterols, etc., exhibited potential anti-oxidant, anti-inflammatory, suppression of UV damage, and promote collagen synthesis. In addition, dietary phytochemicals include sulfur, present in various foods safeguard the skin against oxidative stress and inflammation. Thus, this article delves into the comprehension of various dietary phytochemicals investigated to alleviate the premature skin aging. The article further highlights specific phytochemicals and their sources, bioavailability, mechanisms, etc., in the context of safeguarding the skin against oxidative stress and inflammation. The present manuscript is a systematic comprehension of the available literature on dietary phytochemicals and skin aging in various database, i.e., PubMed, ScienceDirect, Google Scholar using the keywords, i.e., "dietary phytochemicals", "nutraceuticals", "skin aging" etc., via Boolean operator, i.e., "AND". The dietary guidelines presented in the manuscript is a unique summarization for a broad reader to understand the inclusion of various functional foods, nutrients, supplements, etc., to prevent premature skin aging. Thus, the utilization of dietary phytochemicals has shown a promising avenue in preventing skin aging, however, the future perspectives and challenges of such phytochemicals should be comprehended via clinical investigations.

1. Introduction

Skin aging, also known as premature skin aging, expedite the senescence of the skin that occurs prior to the skin's normal aging

process (Ganceviciene et al., 2012a). This is characterized by the early onset of wrinkles, fine lines on skin, dermatologic marks, and uneven skin tone (Papaccio et al., 2022). External factors that increase the chances of premature skin aging include exposure to direct and indirect

* Correspondence to: H. Singh, School of Pharmaceutical Sciences, IFTM University, Moradabad, Uttar Pradesh 244102, India.

** Correspondence to: A.-K. Mishra, SOS School of Pharmacy, IFTM University, Moradabad, Uttar Pradesh 244102, India.

E-mail addresses: harpreetproctor@rediffmail.com (H. Singh), arun_azam@rediffmail.com (A.K. Mishra).

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