

Resveratrol and its Derivatives: Pharmacological Effects, Targets and Production

Editorial

Currently, cardiovascular diseases and cancer are the leading causes of death and illness worldwide. Research dealing with the identification of naturally occurring substances that serve as therapeutic agents has led to in-depth studies on resveratrol (3,4',5-trihydroxystilbene) which has been shown to have diverse pharmacological properties, including in cancer chemoprevention and in the protection against cardiovascular and neurodegenerative diseases.

In this special issue, the molecular mechanism of resveratrol's beneficial effects on various diseases has been summarized by different experts in the field. An interest in this polyphenol compound initially arose due to a phenomenon called the "French Paradox", which refers to a low incidence of cardiovascular diseases among the French population despite a high fat diet. Thus this issue started with the first review by *Dr. Das* and his colleagues, which particularly summarizes the mechanisms of cardio-protection, the progress in the chemical and biological production of resveratrol and its derivatives, their biological targets and bioavailability. The second review by *Dr. Fulda* presents how resveratrol regulates cell survival and cell death signalling, which is expected to open new avenues for the exploitation of resveratrol in the prevention and treatment of cancer. Finally, a review by *Dr. Pallas et al.* summarizes how resveratrol affects cell cycle and mediates life-span increase, and particularly how resveratrol performs its neuroprotection activity. We can conclude and imagine from these reviews that resveratrol shows diverse effects on a wide range of diseases, which makes it an attractive compound for therapeutic purposes. This might provoke the following response from our readers; "Sounds interesting, we need more production!" To this end, the last review in this issue, deals with the methods of production of resveratrol including extraction, chemical synthesis and biotechnology. Additionally, the stability, bioavailability, as well as the structure-activity relationships of resveratrol and its analogues have also been discussed to stimulate further development of more stable and effective analogues. In summary, I hope this special issue will provide a good impact on readers with an overview of resveratrol and future strategies for its potential pharmacological uses.

Finally, as a guest editor for this special issue, I am very grateful for the valuable and excellent contributions from my colleagues and I am also highly appreciative of all the referees for their expert comments on the papers, despite their tight schedules and for their precious time. My sincere thanks to **Miss Qurrat-ul-Ain Khan** for her nice cooperation as well as to the editors of MROC for giving me the chance to organize this special issue on this exciting topic. I hope that the readers will enjoy reading the complete issue.

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