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Administration of resveratrol: What formulation solutions to bioavailability limitations?

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Abstract

Resveratrol (3,5,4'-trihydroxystilbene), a naturally occurring polyphenol, has attracted considerable interest for its beneficial potentials for human health, which include anti-oxidant, anti-inflammatory, cardioprotective and anti-tumor activities. However, the in vivo biological effects of resveratrol appear strongly limited by its low bioavailability, which is a barrier to the development of therapeutic applications. In this context, an increasing number of recent studies have aimed at designing novel resveratrol formulations to overcome its poor solubility, limited stability, high metabolism and weak bioavailability. This review outlines physicochemical and pharmacokinetic limitations to resveratrol bioavailability, describes formulations tested for resveratrol administration, controlled release and targeting, and identifies future opportunities for resveratrol delivery.

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