Chapter 14
Pharmacology and Therapeutic Applications of Resveratrol

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ABSTRACT

Resveratrol (3,5,4'-trihydroxy-trans-stilbene) is a non-flavonoid polyphenolic compound belonging to the stilbene group which is the main compound found in grapes. Resveratrol has shown a wide range of preventive and therapeutic alternatives against several diseases including distinct types of cancer, heart disease, stroke, diabetes, obesity, inflammation, antioxidant. It is a highly efficient treatment, which might be due to the three hydroxyl groups in its structure. Consumption of resveratrol has been shown to improve health status and has the positive effect of treatment of many diseases. Moreover, it has been demonstrated that resveratrol possesses the potential of lifespan extension in various organism and animal models. However, the long-term use of resveratrol may have some adverse effects and should be studied deeper. This chapter will outline some pharmacological effects of resveratrol.

BACKGROUND

Name: Resveratrol
Different name: 3,4',5-stilbenetriol; 3,5,4'-trihydroxystilbene; trans-resveratrol-3-O-sulfate; trans-resveratrol; cis-resveratrol; resveratrol-3-sulfate.

Resveratrol has been known since 1939, when the Japanese by chance extracted the rhizomes of the "Veratrum" (Arichi et al., 1982). Its chemical texture was published in the "Journal of Japanese Chemistry Association" and was named Resveratrol, meaning "resorcinol from Veratrum". Resveratrol is a white powder, a molecular weight of 228.35, which is one of the simplest phenolic compounds from plants. Resveratrol is a substance found in at least 70 types of plants, most commonly found in foods, including grapes, peanuts, pineapple, strawberry, etc. (Figure 1). Resveratrol has a ring structure composed of many hydroxy acids (Figure 2). Hydroxy groups can be oxidized to promote antioxidant activity, provide for resveratrol stronger antioxidant activity than vitamin C, E, and glutathione (Sobolev & Cole, 1999).

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THE POTENTIAL OF RESVERATROL IN CARDIOVASCULAR DISEASE TREATMENT

Cardiovascular diseases (CVDs) are considered to be the most common cause of the death in the global

Figure 1. Examples of fruits and food rich in resveratrol

Figure 2. The structure of the trans-cis of resveratrol