

Superoxide anion scavenger effect of *Quercus glauca* Thunb. in whole blood of patients with ankylosing spondylitis.

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Abstract

Nine phenolic compounds, catechin (1), epicatechin (2), galliccatechin (3), epigallocatechin (4), procyanidin B-4 (5), catechin-3-O-rhamnoside (6), rutin (7), querglanin (8) and isoquerglanin (9) were isolated from oak leaves (*Quercus glauca* Thunb. Fagaceae), and the latter two (8, 9) were identified as new compounds. Several *Quercus* species have been used in folk medicine as an astringent for hemorrhoids and for treatment of inflammation, jaundice, and tumor. In this study, these compounds were tested for scavenging effects of the superoxide anion in the whole blood of patients with ankylosing spondylitis by means of an ultra-sensitive chemoluminescence (CL) analyzer and lucigenin amplification. The results showed that at a concentration of 2.3×10^{-5} M, isoquerglanin (9) displayed the strongest inhibition activity (73.55%), followed by querglanin (8) (68.81%) and then galliccatechin (3) and epigallocatechin (4) (66.97 and 60.17% inhibition, respectively). In addition, the blood chemoluminescence (CL) level of patients with ankylosing spondylitis was inhibited by superoxide dismutase (SOD) but not by catalase, suggesting that superoxide anion is the major component of reactive oxygen species (ROS) involved in this assay system.