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Isolation of antibacterial constituent from rhizome of *Drynaria quercifolia* and its sub-acute toxicological studies

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Abstract:

Background and the purpose of the study: The rhizomes of *Drynaria quercifolia* have antibacterial properties and are used traditionally for the treatment of cough, tuberculosis and typhoid fever. In the present study an attempt was made to isolate microbiologically active constituents from the rhizome of *D. quercifolia* and to determine their antibacterial and toxicological effects.

Methods: Bioassay-guided investigations was employed for isolation of the active constitute of the rhizome of *Drynaria quercifolia* J. Smith. Disc diffusion technique and serial tube dilution technique were used to determine in vitro antibacterial activity and MIC, respectively. Sub-acute toxicities (body weight, hematological, biochemical and histopathological) were studied in albino mice upon 14 days treatment.

Result and major conclusion: Bioassay-guided investigations led to isolation of 3,4-dihydroxybenzoic acid whose in vitro antibacterial activity, minimum inhibitory concentration (MIC) and sub-acute toxicities were studied. The 3,4-dihydroxybenzoic acid showed significant antibacterial activity against four Gram-positive and six Gram-negative bacteria. The MIC values of 3,4-dihydroxybenzoic acid against these bacteria ranged from 8 to 64 µg/mL. In sub-acute toxicities studies 3,4-dihydroxybenzoic acid showed no significant effect in comparison to that of control group. In addition, acetyl lupeol was isolated from rhizome of this plant whose in vitro antibacterial activity was insignificant. Isolation of 3,4-dihydroxybenzoic acid and acetyl lupeol are the first report from this plant.

Keywords:

[Drynaria quercifolia](#) , [3,4-dihydroxybenzoic acid](#)

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