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Anticarcinogenesis effect of Gynura procumbens (Lour) Merr on tongue carcinogenesis in 4NQO-induced rat

Abstract

In Indonesia Gynura procumbens (Lour) Merr leaves have been long used as various cancers medication. Many in vitro and in vivo studies have demonstrated anticarcinogenesis of ethanol extract of Gynura procumbens leaves. The aim of this study was to investigate the anticarcinogenesis of the ethanol extract of Gynura procumbens leaves on 4 nitroquinoline 1-oxide (4NQO)-induced rat tongue carcinogenesis. Fifty six 4 week old male Sprague Dawley rats were used in this study and divided into 7 groups. Group 1, 2 and 3 were lingually induced by 4NQO for 8 weeks. In groups 2 and 3 the extract was given simultaneously with or after 4NQO induction finished, each for 10 weeks and 26 weeks, respectively. Groups 4, 5 and 6 were induced by 4NQO for 16 weeks. However, in groups 5 and 6 the extract was given as well simultaneously with or after the 4NQO induction, each for 18 weeks, respectively. Group 7 served as the untreated control group. The results from microscopical assessment showed that tongue squamous cell carcinomas (SCC) developed in 100% (3/3) of group 1. However, only 33.3% (2/6) and 25% (2/8) of rats in groups 2 and 3, respectively demonstrated tongue SCC. Among groups 4, 5 and 6, no significant difference of tongue SCC incidence was observed. From these results it is apparent that the ethanol extract of Gynura procumbens leaves could inhibit the progression of 4NQO-induced rat tongue carcinogenesis in the initiation phase.

Keyword : Gynura, procumbens, 4NQO, rat, tongue, carcinogenesis,
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