

Evaluation of Naringenin Role in Inhibition of Lung Tumor Progression in Mice

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Abstract : Background:Naringenin, aglycone flavonoid possess certain activities like anti-oxidant, anti-estrogenic, anti-diabetic, cardioprotective, anti-obesity,anti-inflammatory, hepatoprotective and also have anti-cancer characteristics like carcinogenic inactivation, cell cycle arrest, anti-proliferation, apoptosis, anti-angiogenesis and enhances anti-oxidant activity. Methodology:The inhibitory effect of Naringenin in lung tumor progression estimated with adenocarcinoma (A549) cell lines (in vitro) and C57BL/6 mice injected with 5 X 10⁶A549 cell lines (in vivo) in a tri-dose manner (Naringenin 100mg/kg,150mg/kg, and 200mg/kg) compared with standard chemotherapy drug cisplatin (7mg/kg). Results:The results of the present study revealed a dose-dependent activity in Naringenin and combination with cisplatin at a higher dose which showed decreased tumor progression in mice. In vitro studies carried out for estimation of cell survival and Nitric Oxide (NO) level, shows dose dependent action of Naringenin with IC₅₀ value of 42µg/ml. In vivo studies were carried out in C57BL/6 mice. Naringenin satisfied the condition of an anti-cancer molecule with its characteristics in fragmentation assay, Zymography assay, anti-oxidant, and myeloperoxidase studies, than cisplatin which failed in anti-oxidant and myeloperoxidase effect. Both in vitro and in vivo establishes dose dependent decrease in NO levels. But whereas, Naringenin showed adverse results in Matrix Metalloproteinase (MMP) enzymatic levels with increase in dose levels. Conclusion:From the present study, Naringenin could suppress the lung tumor progression when given individually and also in combinatorial with standard chemotherapy drug.

Keywords : naringenin, in vitro, cell line, anticancer

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