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Treatment of Histopathological Symptoms in N-Nitrosopyrrolidine Induced Changes in Lung Tissue by Isolated Flavonoid from Indigofera tinctoria

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Abstract : N-nitrosopyrollidine or NPYR is a tobacco-specific nitrosamine which upon intoxicated causes abnormal production of Reactive Oxygen Species disrupt the endogenous antioxidant system. The study was designed to evaluate the histological changes in lung tissue of Mus musculus in NPYR administered lungs and effect of isolated flavonoid 3,6-dihydroxy-(3',4',7'-trimethoxyphenyl)-chromen-4-one-7-glucoside (ITC) from experimental plant Indigofera tinctorial. Post treatment with isolated compound significantly restored the abnormal symptoms and changes in pulmonary tissue. Transverse section of mouse lung in control animals appeared as a thin lace. Histologically, most of the lung was arranged as alveoli which were thin walled structures made up of single layered squamous epithelial cells. In the transverse section of lung at 100 X will clearly show the component of alveoli, surround by a thin layer of connective tissue and blood vessels. Smaller bronchioles were lined by cuboidal epithelial cells while larger bronchioles were lined by ciliated columnar epithelium layer while in NPYR intoxicated lungs signs of vast pulmonary damages and carcinogenesis as alveolar damage, necrosis, DADs or defused alveolar damages hyperplasia, metaplasia, dysplasia and next stage of carcinogenesis were revealed. Treatment with ITC showed the significant positive changes in the lung tissue due to the side hydroxyl and methoxy groups in its structure which help in combating oxidative injuries and give protection from the free radicals generated during the metabolism of NPYR in body. Thus, histopathological analysis confirms the development of the cancerous conditions in the lung tissue in mice model and the protective effects of ITC.

Keywords : flavonoid, histopathology, Indigofera tinctoria, lung
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