

Grape Extract: Effective Radioprotector



The usage of gamma radiations is increasing in healthcare, particularly diagnostic and therapeutics. Exposure to gamma radiations can kill living cells, a property which medicine exploits to treat cancerous cells. However, normal cells also get damaged on being exposed to these harmful radiations along with blood and other components. Therefore, it is essential to have an effective protective agent against such radiation damages.

Indrani Singha and S K Das from College of Medicine & JNM Hospital, West Bengal, India demonstrated the radio-protective activity of grape extracts against gamma radiation mediated membrane damage. They employed red blood cells (RBCs) as an in vitro model since its membrane is rich in polyunsaturated fatty acids, which are extremely susceptible to lipid peroxidation – oxidative degradation of lipids.

The scientists pre-treated the freshly drawn blood samples from healthy volunteers with grape extracts before irradiating the RBCs with gamma rays. Interestingly, one hour of gamma radiation treatment did not have any negative impact on RBCs. The grape extracts did not alter the viability of RBCs. They

also demonstrated that gamma radiation altered the structural integrity of the cell membrane with changes in osmotic fragility and morphology of RBCs. On the other hand, the grape extracts significantly reduced the radiation-induced morphological alteration and conferred protection at all levels. It indicates that the grape extract is a promising radio-protective agent (*Indian Journal of Experimental Biology* 2016, **54**: 735-744).

Further, they tested the performance of this inkjet-printed NiO film in an organic solar cell device. In such a device, the hole transporting layer must bond well

with the light absorbing material to provide a smooth passage for the positively charged ‘holes’ of the material to reach an electrode. To achieve this, they chemically

and thermally treated the NiO film and were able to drastically improve the conversion efficiency of the device from 0.75% to 2.67%. This study implies that structurally and chemically identical NiO films can be easily manufactured on a large scale at a low cost by using inkjet printing technique (*Scientific Reports* 2017, **7**(1): 1775).

