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Antioxidants from indegenous medicinal plants inhibit proliferation of ascitic cancer cells

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A number of reactive oxygen species (ROS) and reactive nitrogen species (RNS) are essential parts of aerobic life and metabolism. ROS and RNS are normally generated by tightly regulated enzymes, such as NAD(P)H oxidase isoforms and NO synthase (NOS), respectively. Free radicals increase tumorigenesis by causing DNA damage and mutation, inhibiting apoptosis, stimulating cell proliferation and inhibiting DNA repair. Over production of ROS may cause 'oxidative stress' which leads to the development of many diseases such as cancer, diabetes, neurodegenerative disorders, liver injury, and cardiovascular disease. Reduction of unstable and reactive free radicals, induction of apoptosis, and inhibition of cell proliferation can be achieved via antioxidants that protect cells from free radical attack. We hope to identify natural antioxidants from herbal medicine as sources for replacing synthetic antioxidants, which are limited by their adverse side effect. Previously, it is reported that 70% methanol extract of *Terminalia chebula, Terminalia belerica, Emblica officinalis* and *Spondias pinnata* showed excellent efficacy in their antioxidant and radical scavenging abilities, compared to the standards. Cytotoxic effect of various doses of all four extracts were also observed in vitro on Ehrlich's Ascites Carcinoma (EAC) cells and normal splenocyte cells. These extracts showed significant cytotoxicity against EAC cells and found non-toxic to splenocytes. This study suggests that 70% methanol extract of the same four plants might be useful as potent sources of natural antioxidant and could be useful in cancer treatment.

Biography

Sourav Panja is pursuing his Ph.D. under the guidance of Prof. Nripendranath Mandal from Bose Institute, Kolkata, India. He is a dynamic researcher in the field of antioxidant activity of Indian medicinal plants, along with their anticancer and anti-inflammatory capacities. In this respect, he has published 3 papers in reputed international peer-reviewed journals.