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Antioxidant activity of Tinospora cordifolia extract depends on the solvent system

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Medicinal values of plants have been recognized owing to the presence of biologically active phytochemicals beneficial to the human body. Most of the physiological impairment, tissues damages, pathological events or diseases have been attributed to unstable and extremely reactive chemical species called free radicals and/or reactive oxygen species. Medicinal plants contain many phytochemicals, viz. phenolics and flavonoids, beneficial effects of which are related to their antioxidant activity, particularly through scavenging free radicals, donation of hydrogen atoms or electrons, or chelation of metal cations. Since the distribution of phytochemicals in plants at the tissue, cellular and subcellular levels is not uniform, recovery of antioxidant compounds from plant materials is typically accomplished through different extraction techniques. Solvent extraction of *Tinospora cordifolia* stem was done with water, 60% ethanol and 70% methanol to compare the antioxidant activity of the extract from each solvent system. The extracts are subjected to antioxidant and free radical scavenging assays, along with Fe^{2+} chelation and lipid peroxidation inhibition. Results showed that 70% methanol extract showed the best activity in comparison to the extracts obtained from the other solvents. However, the water extract exhibited highest antioxidant (TEAC value) and the 60% ethanol had overall mediocre capacity. Since the amount of the phytochemicals quantified from each extract corresponded exactly to their respective antioxidant activity, it was concluded that the solvent with medium polarity (70% methanol) will be able to extract most effectively the polar as well as non-polar compounds from the plant material.

Biography

Rhitajit Sarkar is completing his PhD under the guidance of Dr. Nripendranath Mandal from Bose Institute and the University of Calcutta, India. He is a dynamic researcher in the field of antioxidant activity of Indian medicinal plants, along with their anticancer capacities. In this respect, he has published 25 papers in reputed international peer-reviewed journals and a couple of book chapters.

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