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Insectivorous Medicinal Plant Drosera Ecologyand its Biodiversity Conservation through Tissue Culture and Sustainable Biotechnology

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Abstract : Biotechnology contributes to sustainable development in several ways such as biofertilizer production, biopesticide production and management of environmental pollution, tissue culture and biodiversity conservation in vitro, in vivo and in situ, Insectivorous medicinal plant Drosera burmannii Vahl belongs to the Family-Droseraceae under Order-Caryophyllales, Dicotyledoneae, Angiospermeae which has 31 (thirty one) living genera and 194 species besides 7 (seven) extinct (fossil) genera. Locally it is known as “Patkanduri” in Odia. Its Hindi name is “Mukhajali” and its English name is “Sundew”. The earliest species of Drosera was first reported in 1753 by Carolous Linnaeus called Drosera indica L (Indian Sundew). The latest species of Drosera reported by Fleisch A, Robinson, AS, McPherson S, Heinrich V, Gironella E and Madulida D.A. (2011) is Drosera ultramafica from Malaysia. More than 50 % species of Drosera have been reported from Australia and next to Australia is South Africa. India harbours only 3 species such as D. indica L, Drosera burmannii Vahl and D. peltata L. From our Odisha only D. burmannii Vahl is being reported for the first time from the district of Subarnapur near Sonepur (Arjunpur Reserve Forest Area). Drosera plant is autotrophic but to supplement its Nitrogen (N2) requirement it adopts heterotrophic mode of nutrition (insectivorous/carnivorous) as well. The colour of plant in mostly red and about 20-30cm in height with beautiful pink or white pentamerous flowers. Plants grow luxuriantly during November to February in shady and moist places near small water bodies of running water stream. Medicinally it is a popular herb in the locality for the treatment of cold and cough in children in rainy season by the local Doctors (Kabiraj and Baidya). In the present field investigation an attempt has been made to understand the unique reproductive phase and life cycle of the plant thereby planning for its conservation and propagation through various techniques of tissue culture and biotechnology. More importantly besides morphological and anatomical studies, cytological investigation is being carried out to find out the number of chromosomes in the cell and its genomics as there is no such report as yet for Drosera burmannii Vahl. The ecological significance and biodiversity conservation of Drosera with special reference to energy, environmental and chemical engineering has been discussed in the research paper presentation.

Keywords : insectivorous, medicinal, drosera, biotechnology, chromosome, genome
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