Ecofriendly Method to Degrade Carcinogen in Water

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A cancer causing toxin malachite green can now be degraded in an ecofriendly manner with the help of a new bioreactor, claim scientists at the Saint Xavier's College and National Institute for Interdisciplinary Science and Technology, Kerala in their recent study.

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Malachite green is a potent carcinogen to humans that is commonly used in aqua culture to control fungal and protozoan infections of fish. Humans get exposed to malachite green on consuming treated fish and eggs because it is readily absorbed by fish tissues and eggs. It is unlikely that the global usage of malachite green will reduce or stop because it has low cost, is readily available and highly efficient in controlling fish infections. Hence, we need better ways to decontaminate polluted water and make it fit for consumption. Treating contaminated water with non-toxic and natural measures is more desirable because it is sustainable and environment friendly.

Scientists at the Saint Xavier's College and National Institute for Interdisciplinary Science and Technology, Kerala have standardized a bioreactor that contains a mass of cultured cells called callous of the plant *Tecoma stans* immobilized on calcium alginate beads that effectively degrades approximately 94% of malachite green in 42 hours from contaminated water samples.

The scientists proclaim that this method is better than the existing methods by saying, "The present study is a cost effective method of brilliant green degradation where the enzyme in immobilized callus shows good optimization parameters compared to the enzyme in free callus and bears good storage stability and reusability making it better than most of the reported immobilized systems for bioremediation".

They have found promising results in smaller batch cultures and advocate setting up larger bioreactors for decontaminating polluted water at a mass scale using non-toxic plant cells and this new environment friendly method.

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