**Bioresource Utilization of Assam Green Tea**

Assam produces tea of around 618 thousand tons per annum. Besides the typical quality of flavored liquor from Assam tea, around 20% of catechins have been reported to be extracted from Assam tea leaves. Catechins are one of the most powerful antioxidants in the category of natural products included as a dietary intake. We utilize an optimized aqueous extraction as a downstream procedure for obtaining green tea catechins (GTCs). GTCs are utilized for the formulation of preservatives and vegan butter.

Post-extraction of GTCs from green tea leaves, we are left with spent tea leaves as biowaste. Green tea waste is rich in its lignin content and hence suitable to be made into porous carbonaceous materials. We have prepared pharmaceutical grade super-activated carbon (high surface area carbon) from tea waste. The mesoporous carbon is used for the treatment of textile wastewater for the removal of toxic dyes from wastewater.

The spent activated carbon from the dye removal studies was reactivated by recovering the adsorbed dye for multiple cycles of dye removal studies. After the complete exhaustion of the adsorptive properties of activated carbon, it can be safely returned to the soil by adding as a composting aid to hold back soil nutrients for a longer time.