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Carbonized kapok fibres as a potential adsorbent for removal of heavy metals

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Ceiba pentandra is a tropical tree of the order Malvales and the family Malvaceae, which originated in tropical India, is found widespread in several plantations in Southeast Asia. Kapok is the most used common name for the tree and may also refer to the cotton obtained from its seed pods. Pressed seed oil can be derived from the seeds of the kapok tree. The oil has a yellow color and a pleasant, mild odour and taste. Kapok oil has some potential as a bio-fuel and in paint preparation. The removal of heavy metal contaminants from aqueous solutions is one of the most important environmental concerns because metals are bio-refractory and are toxic to many life forms. The high cost of commercially available activated carbon limits its use as an adsorbent in developing countries. Hence, there is a growing need to prepare activated carbon from cheaper and locally available bio-waste materials. Kapok fibers revealed that activated carbon prepared from the hulls of *C. pentandra* has good capacity for the sorption of Cd, Pb, Zn and Cu. Natural kapok fibers were compared with the activated carbonized kapok fibers to adsorb standard heavy metals (chromium and cadmium). Standard solutions of chromium and cadmium were prepared and calibrated to study adsorption of heavy metals using atomic absorption spectrophotometer. Seeds are the primary stage of plant life cycle they have strong defense mechanism possibly due to the presence of phyto-constituents contributing to antioxidant activity. Kapok oil was extracted from the seeds by re-reflexing with hexane using Soxhlet Extraction method. After the completion of the extraction process, the oil was recovered from the mixture by distillation and evaluated by Gas Chromatography which revealed the fatty acids presence similar to that of edible oil (groundnut, sunflower) showing the properties of Antimicrobial and Antioxidant activity.

Biography

Preethi B is doing BE Biotechnology final year from R V College of Engineering. She is keen on working related to Agriculture and Technology. Her current project is related Kapok fibres and its characteristics.

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Heterosis studies in brinjal (*Solanum melongena* L.) for yield components and *Cercospora* leaf spot resistance

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The present investigation was conducted to magnitude of heterosis of brinjal (*Solanum melongena* L.) for identifying desirable cross combinations. The experiment comprising 36 hybrids obtaining by crossing 15 parents (12 lines and 3 testers) for line x tester analysis. All the hybrids and their parents were shown in a randomized block design with two replications at department of Vegetable Science, Chandra Shekhar Azad University of Agriculture and Technology, Kalyanpur, Kanpur (U.P.). The parents and hybrids were sown in single row and 5 plants selected randomly for recording observation for all the characters. Heterosis analysis of variance was highly significant for all the characters under study. The study revealed that cross combination KS-8507 x KS-7512 (112.64%), KS-5623 x KS-7512 (110.39%) and KS-7846 x KS-8822 (92.47%) were significant increase over mid parent the cross combinations for yield per plant and KS-7570 x KS-8821 (-64.68%), KS-7570 x KS-8822 (-66.41) and KS-8204-2 x KS-8822 (-61.97%) for *Cercospora* leaf spot resistance. Therefore, these hybrids may be advanced and exploited in future breeding programs for improving yield components and *Cercospora* leaf spot resistance by getting seed from selfed F1 hybrids.

Biography

Venkata Naresh B has completed his M.Sc. (Ag) Horticulture Vegetable Science at the age of 23 years from Chandra Shekhar Azad University of Agriculture and Technology, Kanpur. This is the first international seminar for him to participate. His research topic is "Heterosis studies in Brinjal (*Solanum melongena* L.) for yield components and *Cercospora* leaf spot resistance".

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