

Licensing and Technology Transfer Opportunity: Manipal University

Title of Technology Available: AN ENVIRONMENTALLY FRIENDLY DYE AND A METHOD TO PRODUCE THE DYE

Brief Description of Invention:

An ecofriendly plant based bioink was invented by using a green process. This ink can be manufactured from high tannin containing plant parts such as *Terminalia chebula* seeds. The fine powder of these plant parts were mixed with water and any rusted iron articles for 48 hours to develop a black precipitate. This was filtered with a cloth material. From this filtrate, print quality ink was prepared by boiling the filtrate with natural salt, arrow root powder and gum arabic. Further the solution was concentrated by boiling. Sodium chloride acted as an antimicrobial agent which prevented fungus or bacterial growth, starch promoted cohesive property of the ink particle and gum Arabic acted as a binder to the surface of the printing material such as paper. This ink can be stored for many days without damage. This technique only uses naturally existing materials. Therefore the product or process never exposes any hazards to the living things or to the environment.

Brief Background of Invention:

Traditionally printable ink is petroleum based and there has been multiple reports that these ink can cause potential risk to human health as well as the environment. This has lead to an awareness in industry to develop sustainable green ink. Therefore there is a search for more sustainable inks. Currently such inks developed and marketed are based on soybased binder and vegetable oil.

Describe the final product:

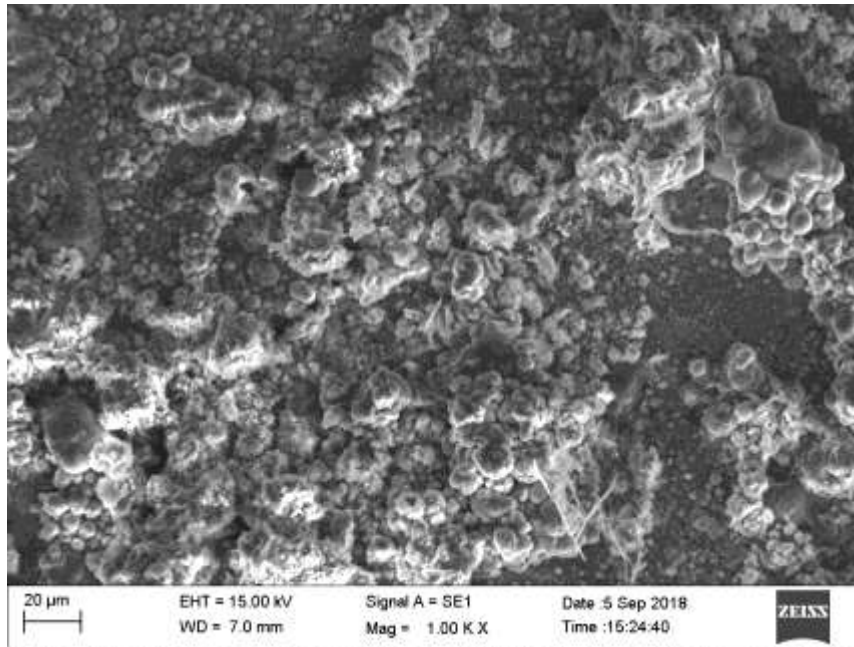
A black dye

Technological Domain (Keywords):

Ecofriendly ink, green technology, tannin, *Terminalia chebula*

Proof of Concept:

Dye is available with the inventor



SEM image of the dye particle

Stage of Development:

Ideation/**Prototype**/Advanced Prototype/Ready to Market technology

Provide Information on Competitors who manufacture and/or sell similar products: NA

What are the unique advantages your innovation has compared to the competition:

Current organic ink are based on vegetable oils and organic binders. The current ink is more dark, easy to produce and more reliable. It is also 100% ecofriendly since it uses green technology. A few potential companies who might be interested in this technology:

- (i) Udayavani (ii) Any printing press (iii) Any ink manufacturing company

Intellectual Property Status: Indian Patent application with number filed in (mention year) 202041001379 with title “AN ENVIRONMENTALLY FRIENDLY DYE AND A METHOD TO PRODUCE THE DYE”, Year 2020