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BIOPLASTICS FROM BIOMASS; THE FUTURE CRUDE OIL

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While most major corporations around the world have escalated their efforts in recent years on improving the Environmental Impact and Sustainability via several routes, some breakthrough concepts enabled via biotechnology, have only lately emerged. For example, converting land and forest wastes, i.e., non-fossil raw-materials that are bio-sourced/ sustainable into chemicals; the latter besides numerous uses serve as building-blocks for traditional as well as new polymers. These initiatives leading to preservation of petroleum resources, reduction of air-land-ocean pollution, and utilization of free/undesirable raw materials are taking the environmental and sustainability efforts to all-time new heights. In this workshop, historic emergence of the bio-based plastics industry will be discussed starting with an era of waste management via biodegradation followed by a period of very high petroleum prices and proliferation of technology pipeline to develop traditional and new durable plastics, and now again through times of lower petroleum pricing/shale gas revolution. Despite turbulent events, reasons for steady-growth of this industry forecasted to be 34Blbs/year by 2020, will be highlighted. An overview will be presented on the state-of-the-bioplastics industry today covering the breadth of polymers such as polyolefins, polyamides, polyesters, polycarbonates and more. Join us to witness how the field of polymers and plastics is being re-invented by converting bio-sourced raw-materials from agricultural-waste into high-quality products that otherwise have been traditionally derived from fossil fuels; an adventure we have not seen in the chemical industry since the 1960's.

GREEN SYNTHESIS OF GREEN TEA CONJUGATED NANOPARTICLES FOR DRUG DELIVERY

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In recent years, functional nanoparticles, have attracted attention due to their unique surface-ratio effects, small size and quantum size effects, and drug loading properties, etc. The phytochemicals present in tea have dual functions as effective reducing agents and can be used as stabilizers to provide strong coatings. The single step facile approach for using tea to synthesize metal nanoparticles in our lab. The drug-loading efficiency (such as doxorubicin hydrochloride, DOX) of metal nanoparticles were investigated, and the drug release profiles could be regulated by chemicals functionalized on the surface of nanoparticles. The toxicity of prepared nanoparticles on cells were evaluated. The results showed that the cells (HaCat, 293T, Hela) had a good viability while culturing with nanoparticles for three days. The metal nanoparticles prepared by using green tea have a good drug-loading efficiency, and the cells could be killed at day three, shows that such drug-conjugated nanoparticles releasing system could be used in tumor cells applications.

Note: