Is biodegradability a solution to plastics end-of-life?

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Plastic wastes on land and in oceans have become major societal issues. Articles in print, television, and social media about plastics waste issues and bans on plastic items are on the rise everywhere in the world. Most serious, is the issue relating to microplastics found in oceans and living systems. Against this backdrop, biodegradable plastics has been touted as a promising solution to the plastic waste problems on land and oceans. We will discuss the science, the hype, and the misleading claims in this space.

Certified, verifiable compostable plastics along with plastics recycling offers responsible end-of-life options for plastics waste in harmony with the circular economy model of the Ellen MacArthur Foundation. Composting defines the boundary conditions under which complete biodegradation (microbial utilization) of plastics needs to be validated using ASTM/ISO International Standards. Certified, and verifiable soil biodegradability as per ISO standards offers responsible end-of-life solutions for agricultural mulch films.

Biography:
Ramani Narayan is University Distinguished Professor at Michigan State University -- the highest honor that MSU bestows on a faculty member. He is an elected Fellow of the U.S. National Academy of Inventors; Fellow, ASTM & ASTM award of merit -- the highest award given by the society to an individual member. He has been awarded the Governor’s (State of Michigan) University Award for commercialization excellence; Michigan Green Chemistry Award Green Chemistry Governor’s Award for developing biodegradable packaging and insulation foams; Fulbright Distinguished Lectureship Chair in Science & Technology Management & Commercialization at University of Lisbon; Portugal; DuPont’s Packaging Award for excellence in Innovation & Sustainability, as part of the Coca Cola Plant bottle team, and many others.

Professor Narayan is Scientific Chair of the Biodegradable Products Institute (BPI) USA; and convener/technical expert on ISO (International Standards Organization) committees; He is technical advisor to many organizations and groups in the bioplastics space – WWF led bioplastics feedstock alliance; USDA Biopreferred program, Coca-Cola company plant bottle advisory Board. He serves on Board of Directors of a public company Northern Technologies (NASDAQ:NTIC).

He has 200+ refereed publications, 30 issued patents, and graduated 20 Ph. D and 25 Master’s students. He is a successful faculty entrepreneur and commercialized several biobased and compostable plastic technologies.