Sneaky peaky creatures depriving bioplastics

Biopolymers are derived from a living source. The first of two different types of biopolymer types is synthesized directly by an organism (examples are DNA, RNA, proteins, and polysaccharides). The second type is produced in a synthetic chemical reaction from biological reactants. The second type includes most of the biopolymers used to make biobased plastics.

The markets for biobased plastics are growing in virtually all parts of the world and one side effect of this growth is facing difficulties due to the activities of rodents and insects.


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Humans are battling with pests since the anthropocene period. The rise of civilization led to the rise of technology that helps to live the life more easily. However, pests like certain rodents and insects are making our life hard to live.

We don't want to forget that in their natural habitats all species including rodents and insects are part of a natural equilibrium. However, within the scope of this article we look at rodents and insects that are ubiquitous also in our modern human habitats. They cause nuisance in our day to day life. They don't discriminate between a house, agriculture field, any size of business or any industrial plant. These pests pose a threat to our livelihood resulting into manifold destructions

The numbers are interesting; 40 % of mammal species found on earth are rodents. Termite colonies eat nonstop, 24 hours a day, seven days a week. This results in billions of dollars in damage every year.

Bioplastics are being used for a myriad of applications such as in the field of packaging, catering products, agriculture, horticulture, consumer electronics and automotive applications. And it seems, that certain rodents and insects particularly like biobased plastics. It is therefore not surprising that these uninvited guests cause a lot of damage to many applications made from biobased plastics such as wires, cables in the telecom, signaling, power supply, gas pipeline sector, agricultural films, automotive fuel lines, consumer appliances and various other applications.

Insects and rodents go hand in hand; the entry of termites paves the way for rodents. Talking about homes, offices, schools, factories, railways all these places have one thing in common which is the presence of some plastic element in that place. Insects like termites, red ants, raspberry ants, secrete a very potent formic acid. This formic acid is capable of dissolving even the hardest of plastics.

With rodents, their propensity to sharpen the two pairs of ever-growing incisors makes them gnaw at anything hard. During gnawing, the incisors grind against each other, wearing away the softer dentine, leaving the enamel edge as the blade of a chisel. This 'self-sharpening' system is very effective and is one of the keys to the enormous success of rodents. They can survive in the worst possible conditions too. Their success is probably due to their small size, short breeding cycle, and ability to gnaw and eat a wide variety of foods.

The aromatic odour of plastics, the bright colour and their smooth texture, attract insects and animals towards them.

Currently used methods of dealing with these annoying rodents and insects are the use of extremely toxic and potentially dangerous rodenticides like Zinc phosphide, chlorophacinone and diphacinone, all of them posing a serious effect on human health as well.

That is why C-Tech Corporation from Mumbai, India, tried to go for an environment friendly solution. The company wanted to stop taking undue risks posed by the use of toxic rodenticides and opt for a better and greener solution which will be non-toxic and harmless to the non-target species. Combirepel™ is a non-toxic, non-hazardous, non- dangerous and environment friendly product developed and offered by C-Tech Corporation to repel rodents and insects, instead of killing them. The product is a result of smart technology and green chemistry. Combirepel is an additive to be blended in plastics and it is made from proprietary essential oils and vegetal extracts. When used with biodegradable and compostable plastics, it does not affect the compostability and does not leave any toxic or hazardous traces behind.

Thus it will be effective in keeping these creatures away from appliances, homes and cars. The product is available in form of masterbatches and can be blended into plastics in extrusion or injection moulding processes. It can also be applied to the surfaces in the form of liquid concentrate or lacquer solution.

Combirepel has a long shelf life and is compliant with RoHS, RoHS2, and REACH and is FIFRA exempted. C-Tech does not aim at disturbing the ecosystem designed by nature. The products is definitely an effective solution for controlling and managing the problems and threat posed by rodents and insects in all bioplastic applications.

C-Tech Corporation's motto is "Live and let live" and they state they'd undertake all steps to live by it.

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