

Growing mushrooms in diapers

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Mexico is the third largest consumer of disposable diapers globally, which led a Mexican scientist to design a technology capable of degrading the product materials by the mushroom *Pleurotus ostreatus*.

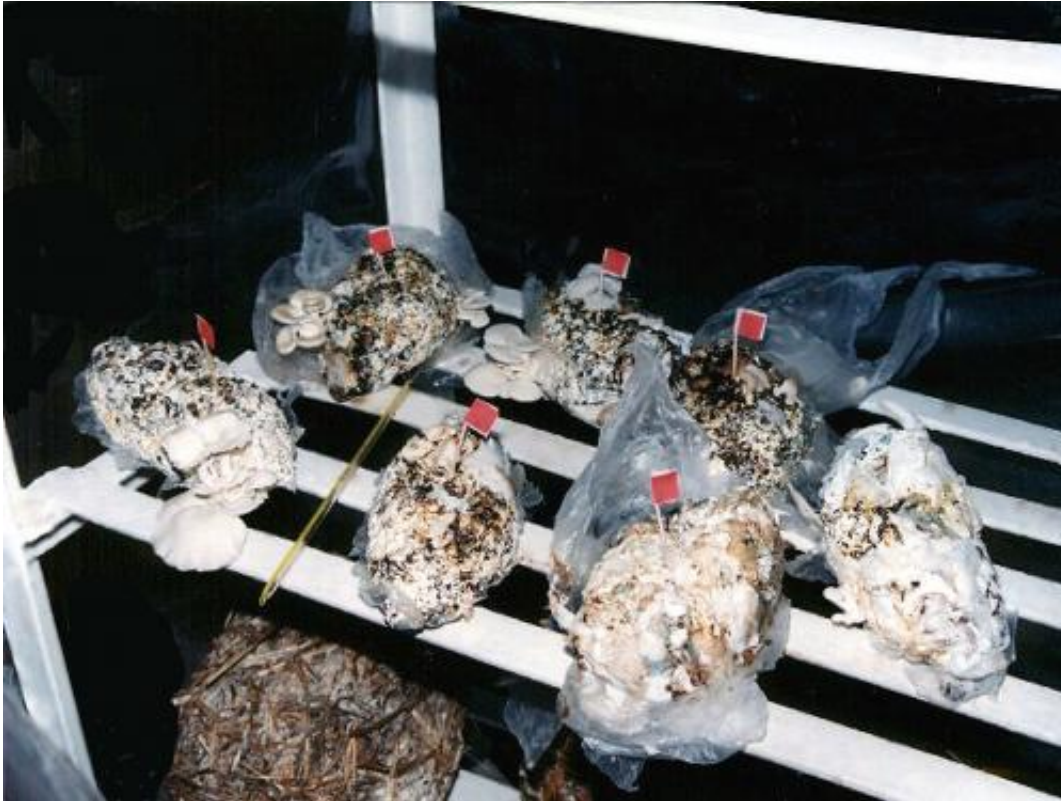
The project, led by Rosa María Espinosa Valdemar, researcher at the

Autonomous Metropolitan University, Azcapotzalco (UAM-A), is entitled "Treatment alternatives for disposable diapers" and consists of degrading baby diapers using them as a basis for cultivating mushrooms. "The idea came after considering that mushrooms feed on cellulose, material present in diapers, but they also possess non-biodegradable synthetic elements such as polyethylene, polypropylene, and superabsorbent gel (sodium polyacrylate) which collects fluids ", he says.

In terms of procedure, Valdemar Espinosa explains that the first step is to get the diapers (only those containing liquid waste). Then they are sterilized by autoclave, ground and mixed with some other material that contains a substance called lignin (which the fungus also needs) from pasture, grape pomace, coffee or pineapple crown. This preparation, where the mushrooms are to be developed is called substrate.

"On the other hand, we have to play the fungus and get what we call commercial seed, which is the growth of the fungus spores on some wheat or sorghum. The product obtained is spread on the substrate (contained in plastic bag) and held two to three weeks in the dark with controlled humidity and temperature, then exposing them to a light phase ", he describes.

He adds that after 2.5 to three months, the diaper degrades and reduces its volume and weight by up to 80 percent. "For example, if we apply this technology in a kilo of diapers at the end of the process it will be reduced to 200 grams and 300 grams of mushrooms," says the researcher.



The plastic materials provide certain benefits to the process, as the occupying space there allows better aeration and growing area.

Moreover, after the fungi grow remnants of the gel material that retain liquid can be recovered and could be applied in soils with low moisture retention "for arid lands of Mexico it is 'golden ground', as it would reduce the amount of irrigation, highlights the professor at UAM.

Once the mushrooms are harvested, the teacher Valdemar Espinosa and his team decided to try them. "We were sure that did not contain contaminants or infectious organisms, and we performed an analysis and found that the contents of protein, fat, vitamins and minerals are the same as that of commercial yeast. It shouldn't have to be different,

mainly because diapers are sterilized ", he says.

It is important to note that these experiments were carried out on a small scale, and cultivated mushrooms have never left the lab so they are not for sale. "The project is not intended to produce mushrooms targeted for human consumption, since the main objective is to get rid of [diapers](#) to avoid damaging the environment more. However, the [mushrooms](#) could be used as food supplement for cattle, the gel can be used to increase moisture retention in some crops and the plastic can be sent to recycling", says the scientist.

Provided by Investigación y Desarrollo

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