CHEMISTRY

Once Wasted Cottonseed Hulls Make New Plastic

Particularly High Degree of Elasticity Makes It Useful in Cotton Sheaves, Cabinets, Fountain Pens

COTTONSEED hulls, formerly worthless, are the raw material for a new plastic industry which is being developed at Knoxville, Tenn., as a result of researches by John F. Leahy and his staff of scientists at the University of Tennessee.

While commercially it will have to compete with plastics manufactured from other types of raw materials, Mr. Leahy says that it has many competitive advantages that will be hard for the others to overcome. It opens up another use for cottonseed which he thinks will be the main product of the cotton plant and the fiber the by-product.

Among other things, this plastic has a particularly high degree of elasticity. So much superior has it been found in this respect that it is getting an extensive use in cotton sheaves heretofore manufactured from wood. Southern spinning mills are already using 350,000 of these sheaves, creating a fine new market at the start. It has been found economical in the molding of radio cabinets, fountain pens, steering wheels, wallboard, etc.

Another advantage offered by cottonseed hulls as a raw material for plastics is their cheapness and the quantity and ease with which they can be assembled. At the oil mills where they have been separated from the cottonseed meats they are already in a movable, workable shape.

Heretofore these hulls have been practically worthless and haven't had even a nuisance value. They get in the way at oil mills. Research shows that cottonseed hull bran is rich in pentosan from which a rare sugar, xylose, is made. Mr. Leahy believes that xylose may be carried a step further to get furfural. Furfural is a solvent used in the refining of lubricating oils. Also to purify rosin from pine stumps. Mr. Leahy believes that 350 pounds of furfural can be secured from cottonseed hulls as compared with 180 from oat hulls.

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ICHTHYOLOGY

Experiments Show Fish Are Sensitive to Cold

LIVING in cold ocean water is a matter of necessity rather than choice for many fishes, according to research conducted by Dr. Peter Doudorouf, University of California graduate. In fact, fish suffer from exposure to very cold water, even unto death.

Dr. Doudorouf describes experiments with the temperature reactions of various marine fish. He used a specially designed gradient tank wherein temperature of the water could be controlled. The resistance to cold and heat varied with the animals' normal temperature environment, but all experimental fishes adapted themselves much more slowly to cold than to heat. Many fish died from cold temperatures that were well above freezing point.

In another test, water in the one tank varied in temperature from warm to cold, and fish were allowed to swim about and choose the most desirable temperature. Some preferred cool, others warmer water, according to their inherited inclinations, but all preferred warmer water than they were normally accustomed to live in.

"The selected temperatures were relatively high in comparison with those which occur in the natural habitats of the fishes," Dr. Doudorouf states. "Some influence of acclimatization upon the reactions was demonstrated, but the selected temperatures were to a large degree independent of past experience."

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ENTOMOLOGY

Trap For Silverfish Is Simple But Effective

AN INGENIOUS but simple trap that can be prepared in any home has proved to be the most effective way of ridding closets and basements of silverfish, cloth- and paper-devouring gray insect pests. Arnold Mallis, entomologist on the Los Angeles campus of the University of California, originated the clever trap and has proved its effectiveness by reducing the silverfish population of the University laboratories by several thousand.

A plain one-ounce ointment jar was given an outer jacket of adhesive tape so that the insects could get a foothold to climb up. Inside Mr. Mallis placed a teaspoonful of white flour, favorite food of silverfish. The pests climbed in avidly, then were trapped by their inability to climb the slippery inside glass walls of the jar.

Tests were extended by placing 100 jars with their taped outsides and flour bait in various laboratories on the campus. At the end of three months 1000 silverfish had been collected, one single room yielding 167 of the captive pests.

This simple method of control is more effective than poisons or fumes, according to Mr. Mallis. As silverfish live and propagate from seven to eight years, they are hardy pests. But it should not be difficult to clean out an infestation with the flour bait trap, and to capture any newcomers thereafter.

"Further tests with trapping are being continued," Mr. Mallis said. "Professors in whose rooms the jars were distributed have already commented upon the decreased number of silverfish. This technique may prove to be one of the best ways of getting rid of the pest."

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