Theme 9: Urbanization -Impacts on ecosystems

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MANAGEMENT OF SOLID WASTES ,THE MIXTURE OF WHEAT FROM DOMESTIC MILLS TO PRODUCE CRUDE ENZYMES

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Wheat bran is one of the solid wastes obtained from the milling machines in local shops. It also contains a few mixtures of rice and ragi bran. Such mixture of bran is not suitable for any purpose and wasted. An alternative is, it is stored and given as a feed to live stock-which can be contaminated causing infections.

A mixture of bran was collected as a raw material for enzyme production. The bacterium *Bacillus licheniformis* , isolated from dead caterpillar, was used as an inoculum. The culture was maintained in ATCC medium 21 under mineral oil and transfered to the sterilized bran taken in trays. The bran was incubated at room temperature for 24-48 hours. The bran was overlaid with buffer and the washings containing crude enzyme were collected. They were preserved at low temperature and studied for their enzyme activity. Amylase enzyme was estimated by DNS method and the enzyme activity was 70µg/ml/min. The protease enzyme was estimated by Lowry's method and it's activity was analyzed to be 1.25µg/ml/min.

The objective of the project is to prevent such mixed bran being used as feed for the live stock for it can contain spores of *Bacillus licheniformis* and cause abortions and immunosuppression in the animals. Mixed bran wastes containing amylase can be used in the animal feed to enhance digestion.