Pollution is a bigger concern in various parts of the world, especially in developing countries. Pollution is undesirable state of the natural environment being contaminated with harmful substances as a consequence of human activities. The fast pace of industrialization, galloping demand for energy and rescurces exploitation of natural resource during the last century have been mainly responsible for aggravating the problem of environmental pollution (current science, 2007).

Feathers take long time for degradation. Increase of feathers in the environment cause environmental problems, respiratory problems in human. The reason for long time degradation is it contains a protein called Keratin. Feather constitutes over 90% proteins. The main component being beta keratin, a fibrous and insoluble structural animal polysaccharide extensively cross linked by disulphide bonds. (Savitha et al., 2007)

The stability of degradation is mainly due to the composition and molecular configuration of constituent aminoacids in addition to the disulphide bonds and also its insolubility. (Wang and parsons, 1977)

The wastes of poultry are currently disposed of by incineration. This method has ecological disadvantages in terms of an apparent energy loss and the production of a large amount
of CO₂. Thus an innovative solution to these problems is urgently needed (Suzuki et al., 2006)

**MATERIAL AND METHODS**

The poultry waste contaminated soil and feather sample was collected from poultry farm near Gandhigram Rural University, Dindigul, during December 2008.

**Isolation of fungi**

Serial dilution technique was carried out for both the samples, followed by the plating technique the dilutions used were 10⁻² and 10⁻³ on Martin’s Rose Bengal Agar medium plates.

**Preparation of Keratinic substances**

A keratin rich substance such as human hair was used as baits. The baits were cut into small pieces of 2-3 cm and were degreased to remove fatty substances. This baits were first washed in distilled water to remove the dust particles and dried, refluxing of baits was done in diethylether for 24 hours. Baits were dried at room temperature and were sterilized at 15 lbs pressure for 15 minutes. (Khanam and Jain, 2002)

**Hair baiting technique**

Half fill the sterile petri dishes with soil samples. Spread short (2-3 cms) strands of sterilized defatted human hair or horse hair over the surface of the soil. Add 10-15ml of sterile distilled water to the soil to facilitate germination of fungal spores. Some antibacterial antibiotics was added to prevent the bacterial growth. Incubate the prepared material at room temperature (20-25°C) in dark for 4-6 weeks. Examine the plates periodically for the development of mycelium, followed by a loop full of inoculum was taken from hair with fungal growth and was placed over sabourd’s Dextrose agar medium. After incubation the colony formation was observed and the colony was pure cultured for further study. (Rahul and Rajak,2003)

**Identification**

The pure cultured colonies were identified based on macroscopic appearance on the agar plate and microscopic appearance by Lactophenol cotton blue staining.

**RESULTS AND DISCUSSION**

Feather waste is generated in large quantity as aby product of commercial poultry processing. Feathers are made up primarily of keratin. These feathers have sizable waste disposal problem (Savitha et al., 2007).

<table>
<thead>
<tr>
<th>Table 1. Isolation of Keratinophilic fungi</th>
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<th>Table 2. Identification of Keratinophilic fungi</th>
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<td>Sample</td>
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<tr>
<td>Soil</td>
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Some of the microorganisms have the ability to degrade the keratin especially fungi. The fungal growth in the poultry waste contaminated soil and feather is because of the utilization of keratin as its sole source of carbon and nitrogen. They play a significant role in the natural degradation of keratinized residues (Rahul and Rajak, 2003)

Isolation of fungi was carried out in Martin’s Rose Bengal agar medium and the results were tabulated in table 1.

The word Keratinophilic means, keratin loving and is sometimes misleading in the sense that all fungi that can grow on keratin rich substance. Keratinophilic species are those only able to use keratin. Others are utilizing non-keratin lipid fraction of the keratin rich substances (Mohamed et al., 2000)

After isolation, hair baiting technique was carried out, to identify the colonies from both the samples SDA medium was used. The results were tabulated in table 2

Degradation and digestion of human hair by Microsporum gypseum invitro and suggested it to be due to the action of enzymes, however mechanical action of he mycelia was observed on the cells of cuticle by (Kunert et al., 1981)

REFERENCES