ABSTRACTS. V Inter. Cong. Ecology, Yokohama, Août 1990, 422

## Y-19[08]

ECOTECHNOLOGICAL PROGRESS TO THE CONTROL OF ORGANIC POLLUTIONS AND CHEMICALS IN HOUSEHOLD REFUSES

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Technological progresses of advanced societies lead to a dramatic change in our production of refuses. While most man refuses, resulting of anthropogenic activities, were spread away in small amounts in the environment and were exclusively made by natural compounds in early civilizations, in modern societies most household refuses are accumulated in huge heaps and include an increasing amount of artificial compounds with pollutants. The disposal of garbage are, until now, reflecting very primitive concepts: technology is grounded on rubbish ground (i.e. no treatment), fire or decaying ("composting"): all of them are poorly adapted to modern refuses.

Four basic difficulties occur: 1) an increase of artificial packaging components, as glass,... 2) an increase of chemicals, 3) the intricated close mixture of inorganic and organic compounds, 4) the country breaking with cities: country exports food and needs good organic matter while cities accumulate organic waste.

Observation of temperate ecosystems gives a tool to solve some of these problems. Epigeic earthworms are specialized in the eating, digesting and size standardization of organic matters. Able to eat a great variety of organic matters (vegetables, paper, cardboard, ...) these animals produce easy-to-sort by sieving organic faecal pellets. The addition of these earthworms to garbage is not enough to use those properties. The handling of urban wastes (1 tonne for 1000 inhabitants per day) needs an improvment at industrial scale complying biological earthworm needs (temperature, humidity, aeration). A new ecotechnology is born from the solution of both industrial and biological problems including initial handlings, sanitization, earthworm work and processing of products, only a tiny amount of non valuable stabilized remains is dumped; no stench or liquid effluents occur. A permanent bioaccumulation control of chemicals is made by analysis of earthworm body burden. The process and quantitative results are described.