

तार: "आकाशवाणी"
Telegram: "AKASHVANI"

भारत सरकार
Government of India
आकाशवाणी

आकाशवाणी-कार्यक्रम-1
(पैरा 5-10-11/5-11-15 देखिए)
AIR-P-1
(See Paragraphs 5-10-11/5-11-15)

All India Radio

वार्ता/लघु कथा शाखा
(Talks / Short Story Branch)

MYSORE

सेवा में

To,
Dr. A.A.M. Kunhi,
Scientist,
CFTRI, MYSORE.

सं. MYS. 15(4)/97-PII
No. _____

दिनांक
Dated 13.3.1997

महोदय/महोदया,

Dear Sir / Madam,

इस पत्र के पीछे छपी शर्तों पर हम नीचे लिखे विषय, दिनांक और समय पर आपकी वार्ता/लघुकथा सहर्ष प्रसारित करेंगे। कृपया संलग्न पुष्टिपत्र पर हस्ताक्षर कर के हमको लौटती डाक से भेज दीजिए। इसके लिए हम आपके आभारी होंगे।

We shall be pleased to broadcast your talk(s) / short story on the subject, date and time detailed below upon the conditions printed overleaf. We shall be obliged if you could kindly sign and return the attached confirmation sheet not later than _____

शीर्षक "Biotechnological approaches to Pollution Control" -
* TITLE Talk in English.

दिनांक 4.4.97 (Recording on 27.3.97 at 11 a.m.)
Date(s) _____

प्रसारण का समय 9.16 P.M.
Time of Broadcast _____

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(Subject to Clause 4 (a) / 4 (b) / 4 (c) of conditions printed below.)

हमारा विशेष निवेदन यह है कि आप कृपया इस शर्त का पालन करके हमारी सहायता करें कि प्रसारण के लिए जो तारीख नियत की गई है उससे कम से कम दस दिन पहले वार्ता / लघुकथा की पांडुलिपि केन्द्र निदेशक के पास पहुंच जाए। इस शर्त का पालन न होने पर केन्द्र के सामान्य कार्यक्रम में गंभीर अवरोध पैदा हो जाता है।

We would particularly ask you to assist us by complying with the condition that the manuscript of the talk / short story should be in the hands of the Station Director not less than 10 days before the date fixed for the Broadcast. The normal routine of the Station is seriously hampered if this condition is not observed.

स्टैप शुल्क सरकार द्वारा वहन किया जाएगा।

The Stamp Duty will be borne by the Government.

भवदीय,
Yours faithfully,



केन्द्र निदेशक,

Station Director,

भारत के राष्ट्रपति के लिए और उनकी ओर से
For and on behalf of the President of India

* लघुकथा के मामले में लेखक उसका शीर्षक यहां भरें।

* In case of Short Story, the title of the Short Story will be filled in by the author.

Kunhi,A.A.M. Biotechnological approaches to pollution control. Talk in English, broadcasted on 4th April 1997 at 9-16 PM by All India Radio (Govt. of India), Mysore Station

BIOTECHNOLOGICAL APPROACHES TO POLLUTION CONTROL

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In recent years particularly after the Rio de Janeiro Conference there has been an everincreasing awareness in our country about the environmental pollution and deterioration and the immediate need for protection of the fragile ecosystem. Environmental pollution is a global phenomenon and is more severe in developed countries. The Western world was fast to wake up, after the publication of the book **The Silent Spring** by Raechel Carson in 1962, which revealed the alarming and stunning facts about the damage caused by the indiscriminate use of agricultural and industrial chemicals. These are largely the pesticides and herbicides. The Western countries immediately banned the use of organochlorine pesticides such as DDT, BHC etc. in early 1970s and other chemicals such as polychlorinated biphenyls, later. However, it is most disturbing to know that all the third world countries including India are still continuing to use most of these dreaded chemicals, even now, in agriculture as insecticides and in health programmes for mosquito control. By now, according to an estimate, more than 60 million tonnes of BHC and a similar quantity of DDT have already gone into our environment, since 1940s. Besides these, several thousands of tonnes of other pesticides such as heptachlor, aldrin, dieldrin, endosulfan and others have also been in use in agriculture in our country for the last several years. (Of course, it is heartening to know that our Government is planning to enforce a total ban on these chemicals, shortly). All these chemicals are highly recalcitrant and persistent and get accumulated in the environment. Our complete environment including soil water and the atmosphere is highly polluted with these pesticide residues as well as other industrial chemicals. Almost all the food we eat, and the water we drink why, even human milk contain alarming levels of pesticide residues. Almost all our rivers are heavily polluted and the soils are loaded with chemical residues. It is a very serious problem which has to be addressed immediately. But how? Effective and rapid methods for elimination of these compounds from our soil and water have to be developed. Conventional treatment technologies have been proved to be not very effective in eliminating the new generation chemicals. However, biotechnological methods offer promising solution to these problems. Biotechnology involves the use of living systems such as microorganisms. Microorganisms are very small living organisms found ubiquitously everywhere in nature. Soil, particularly fertile soil, is replete with different groups of microorganisms. Isolation of potent microorganisms from nature and their improvement in the laboratory by manipulation for rapid

mineralization of these compounds hold the key. In Central Food Technological Research Institute, Mysore research has been going on for the last six to seven years to find out methods for elimination of pesticide and other chemical residues. CFTRI got interested in this area because of the serious problem of contamination of food stuffs with pesticide residues. Now, it has come out with very potent microbial mixed cultures which can degrade significantly high levels of BHC residues. These cultures can successfully be deployed for biodegradation and elimination of the four major isomers of BHC, that are generally present in the commercial preparation and ubiquitously found in the environment.

CFTRI has also isolated several potent bacterial cultures that can effectively degrade fairly high concentrations of DDT residues. Technologies for treatment of soil, water bodies, and industrial effluents are being developed.

Fast developing chemical and pharmaceutical industries have also contributed a great deal to the environmental pollution. A number of chlorinated and other substituted aromatic compounds, phenol and various substituted phenolics and myriads of other chemicals are a major threat to aquatic life as well as a cause of pollution of soil and ground water. Petroleum refineries, several petro-chemical based industries, coal and coke gasification plants and a wide range of pharmaceutical industries pump out thousands of gallons of effluents containing pollutant chemicals everyday.

CFTRI has developed technologies for elimination of phenol, nitrophenols, chlorophenols, chlorobenzoates and several other aromatic compounds from industrial effluents and soil. Very potent bacterial cultures that can degrade high concentrations of these compounds have been isolated and developed in the laboratory. All these technologies are available from CFTRI to any enterpreneur or Government agency for exploitation.

In conclusion it could be said that biotechnological approaches exploiting the unique ability and versatility of microorganisms to degrade toxic chemicals have been proved to be very efficient and economically feasible for finding, atleast, partial solutions to environmental pollution problems.