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### Commentary

### Environmental Biotechnology: Applications

#### Hua Lu\*

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Environmental biotechnology is biotechnology that's applied to and wont to study the natural environment. Environmental biotechnology could also imply that one attempt to harness organic process for commercial uses and exploitation. The International Society for Environmental Biotechnology defines environmental biotechnology as "the development, use and regulation of biological systems for remediation of contaminated environments (land, air, water), and for environment-friendly processes (green manufacturing technologies and sustainable development)". Environmental biotechnology can simply be described as "the optimal use of nature, within the sort of plants, animals, bacteria, fungi and algae, to supply renewable energy, food and nutrients during a synergistic integrated cycle of profit making processes where the waste of every process becomes the feedstock for an additional process".

## Significance for agriculture, food security, global climate change mitigation and adaptation and therefore the MDGs

The IAASTD has involved the advancement of small-scale agroecological farming systems and technology so as to realize food security, global climate change mitigation, global climate change adaptation and therefore the realisation of the Millennium Development Goals. Environmental biotechnology has been shown[citation needed] to play a big role in agroecology within the sort of zero waste agriculture and most importantly through the operation of over 15 million biogas digesters worldwide.

#### Significance towards industrial biotechnology

Consider the effluents of starch plant which has involved with an area water body sort of a lake or pond. we discover huge deposits of starch which aren't so easily haunted for degradation by microorganisms apart from a couple of exemptions. Microorganisms from the polluted site are scan for genomic changes that allow them to degrade/utilize the starch better than other microbes of an equivalent genus. The modified genes are then identified. The resultant genes are cloned into industrially significant microorganisms and are used for economically processes like in pharmaceutical industry, fermentations etc. Similar situations are often encountered within the case of marine oil spills which require cleanup, where microbes isolated from oil rich environments like oil wells, oil transfer pipelines etc. are found having the potential to degrade oil or use it as an energy source. Thus they function a remedy to grease spills.

Microbes isolated from pesticide-contaminated soils may capable of utilizing the pesticides as energy source and hence when mixed alongside bio-fertilizers, could function an insurance against increased pesticide-toxicity levels in agricultural platform. On the opposite hand, these newly introduced microorganisms could create an imbalance within the environment concerned. The mutual harmony during which the organisms therein particular environment existed may need to face alteration and that we should be extremely careful so on not disturb the mutual relationships already existing within the environment of both the advantages and therefore the disadvantages would pave way for an improvised version of environmental biotechnology.

#### **Applications and implications**

Humans have long been manipulating genetic material through breeding and modern genetic modification for optimizing crop yield, etc. There also can be unexpected, negative health and environmental outcomes. Environmental biotechnology is about the balance between the applications that provide for these and therefore the implications of manipulating genetic material. Textbooks address both the applications and implications. Environmental engineering texts addressing sewage treatment and biological principles are often now considered to be environmental biotechnology texts. These generally address the applications of biotechnologies, whereas the implications of those technologies are less often addressed; usually in books concerned with potential impacts and even catastrophic events.

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