



Sustainable Development of Bioresources: Role of Biotechnological Tools

N B Brindavanam *

Bio Resources Development Group, Dabur Research & Development Centre, 22, Site-IV, Sahibabad, Ghaziabad-201 010, U.P., India

Address for Correspondence: N B Brindavanam; baba@dabur.com

ABSTRACT: In terms of the Biological Diversity Act-2002, a biological resource is defined as “plants, animals and microorganisms or parts thereof, their genetic material and by products (excluding value added products) with actual or potential use or value, but does not include human genetic material”. Going by this definition which is essentially, statutory in nature- many biological resources are assumed to have ‘actual’ or ‘potential’ use or value attached to them. These actual or potential values may extend to a vast array of commercial applications such as foods, drugs, industrial enzymes, flavours, fragrances, cosmetics, oleoresins, colours etc. Of all the biological resources, medicinal plants stand tall in terms of their value because of their social relevance. A medicinal plant attains such a high degree of social relevance because of a fact that- it can be used by all strata of a society irrespective of value addition in terms of processing. For example, a forest dweller uses it, in form of a juice- extracted from its leaves collected afresh. A traditional healer in a civilized village may use it in form of power obtained from its dried leaves. A modern physician may use the same plant in form of a molecule isolated from the plant and encapsulated in a modern dosage form. This degree of application flexibility does not exist with other biological resources like enzymes, colors or fragrances. At present industrial applications of medicinal plants fall under two broad categories viz. in phyto-pharmaceutical processes (like pharmaceutical intermediaries or APIs) and in Traditional Ayurveda, Siddha and Unani formulations. Almost 70% of raw material needs for both these sectors are assumed to originate from wild. This practice though not typical to Indian scenario- warrants the need for sustainable development of medicinal plant resources. The biological diversity act also defined the ‘sustainable use’ as the “use of components of biological diversity in such manner and rate that does not lead to long term decline in the biological diversity thereby maintaining its potential to meet the needs and aspirations of present and future generations”. Biotechnology as branch of applied science is known to be a ‘field of immense possibilities’. Wide ranging array of its tools can be brought into play to ensure sustainable development of medicinal plants (which is a sub-set of biological resources). The presentation attempts to provide a bird’s eye view of biotechnological tools that are being explored and applied in the context of ‘sustainability’. © 2014 iGlobal Research and Publishing Foundation. All rights reserved.