Organic and Medicinal Chemistry
International Journal
ISSN 2474-7610

Juniper Publishers
key to the Researchers

Mini Review
Volume 4 Issue 1- October 2017
DOI: 10.19080/OMCIJ.2017.04.555629

Organic & Medicinal Chem IJ

Bio-Fuel Based Agroforestry System for Sustainable Development

Shyamrao Kulkarni*

Extension Leader, India

Submission: September 27, 2017; **Published:** October 02, 2017

***Corresponding author:** Shyamrao Kulkarni, Extension Leader, AEEC, Lingsugur, Gudadnal Road, Lingsugur-584122, Karnataka, India; Email: shams1487@gmail.com

Mini Review

Energy is the key element for the socioeconomic development of the nation, fossil fuels playing dominant role in energy requirement of our nation at present and also in future. However, limited and scarce fossil fuels resulted in escalating fuel prices and bear direct impact on the economy of the nation.

India imports around 75 to 80 per cent of the crude oil from the other countries and incurring 106 billion US dollar in 2010-2011 (India Stat.com) to the exchequer and as for as energy is concerned our nation depends on the other petroleum based countries, in other words we are not energy secured. To achieve the energy security the only ray of hope is finding an alternative fuels especially bio fuels which is renewable, non pollutant, carbon balanced fuel and which also provide employment opportunities.

Bio fuels are produced from seeds of various tree species, biological agents such as fish bone meal, husk of paddy and algae. Apart from this we can think of producing ethanol from agricultural waste material etc,

Agroforestry is having wide scope in this region, we can integrate the tree component as live fence or border plant and on farm bund and integration of bio fuel yielding tree species helps the farmer to get additional income as well it improves microclimatic condition of the farm. Trees also improves the soil fertility and also reduce the soil erosion.

Karnataka is endowed with some of the most magnificent forests in the country. From the majestic evergreen forests of the Western Ghats to the scrub jungles of the plains, a wide variety of habitats exist with very typical flora and fauna, some of them endemic to the region. The total recorded forest area of the state is 38,284.30 Sq. K. M., constituting 20% of the geographical area. As per the National Forest Policy objectives, every State has to endeavour to have at least 33% of its geographical area under vegetation cover. To achieve this it is not only necessary to bring new areas under afforestation activities but also it is necessary to protect and consolidate the existing forest areas. For this agro-forestry is best option for promoting tree based farming in open lands.

Agro-forestry is the set of land-use practices involving the deliberate combination of trees, agricultural crops and/or animals on the same land management unit in some form of spatial arrangement or temporal sequence. Cultivating trees in combination with crops is an ancient practice. However, several factors have contributed to a rising interest in agroforestry since the 1970s: the deteriorating economic situation in many parts of the developing world; increased tropical deforestation; degradation and scarcity of land because of population pressures; and growing interest in farming systems, intercropping and the environment.

Agro-forestry has made tremendous strides in recent years, but many challenges remain in terms of its wider application. It is necessary to identify and measure the range of benefits, given that they are not well documented. Moreover, additional research is required to quantify the benefits to various stakeholders, to deal with the variability in benefits, to assess the effects and trade-offs of different policies and to examine the impact of agroforestry practices on forest protection, particularly in the tropics. Determining which practices are most suited to particular groups, such as women and poor people, is another area that warrants attention.

This initiative is conducting research in development along agro-forestry based biofuel value chains, while at the same time strengthening food security and improving the livelihoods of smallholder farmers. The Programme is committed to developing bio-fuels through smart agroforestry models that benefit the poor, support local livelihoods and the environment, empower women and contribute to food security.

Rationale

The development of pro-poor strategies for sustainable rural development is critical, as most of the world's poor live in rural areas and depend on agriculture and related activities

for their livelihoods. Access to modern, clean energy services is vital for development, including liquid fuels for machinery and transportation. In particular, modern agriculture's dependence on fossil fuels has led to dangerous fluctuations in food prices and social unrest as world oil prices have risen. The challenge for poor farmers is to cushion themselves from these price shocks by becoming more 'Energy-Smart' – maintaining or increasing their food production without increasing dependence on costly fossil fuel inputs. Biofuels hold out the promise of making rural areas more energy independent as well as generating new and important income sources. However, care must be taken that the biofuels and the income they generate are additional to that from an existing food production and not hindering it or increasing pressure for land use change. More productive feed stocks and systems are needed to ensure that overall farm productivity is sustainably increased, enabling biofuels to be produced over and above the current baseline of food production, and without harming the environment. These are some of the issues that the Programme expects to clarify as it develops realistic opportunities for biofuels.

Objectives

The overall objectives is to improve the productivity of agroforestry based biofuel production systems that are economically viable, socially acceptable and environmentally sustainable. The development of market-ready products that enable the poor, including women, to take advantage of this emerging and vast opportunity, thereby improving their cash incomes, improving their food security and increasing their access to affordable energy.

a) Sustainable development of natural resources.

b) Catalytic role in strengthening public-private partnerships and cooperation between financial institutions, development organizations, foundations and the private sector.

Programme Components

a) Conduct coordinated action research along the entire value chain of non-food or multiple-use biofuel crops

b) Support local energy provision and offer policy recommendations to governments on biofuel production that does not compromise food security.

c) Disseminate knowledge and support the mainstreaming of biofuels as an instrument of rural development.

DOI: 10.19080/OMCIJ.2017.04.555629

How to cite this article: Shyamrao K. Bio-Fuel Based Agroforestry System for Sustainable Development. Organic & Medicinal Chem IJ. 2017; 4(1): 555629. DOI: 10.19080/OMCIJ.2017.04.555629.