Geophysical Research Abstracts
Vol. 14, EGU2012-1857, 2012
EGU General Assembly 2012

The Potential of Pigeonpea (Cajanus cajan) for Producing Important Components of Renewable Energy and Agricultural Products

E. Gwata
University of Venda, South Africa (ectgwata@yahoo.com)

In agricultural systems, sustainable crop production is critical in meeting both environmental requirements and the limitations of drought imposed by the effects of global warming. The inputs for crop production and end use of the products should determine the choice of a crop particularly in environments prone to droughts. The objective of this paper is to highlight why a multi-purpose grain legume such as pigeonpea is an ideal crop that can be utilized for producing renewable energy. Firstly, it is highly tolerant to drought and does not require additional soil moisture after the seedling growth stage. The deep tape root extracts moisture and nutrients from deep layers of the soil concomitantly allowing for efficient nutrient recycling. The piscidic acid which is exuded from the roots enhances the solubilization of phosphorus in order to make it available for plant uptake. Secondly, the grain of pigeonpea is suitable for both human food and feedstocks. The grain is rich in oil, vitamins, minerals and protein. The grain can also be used for producing biofuel. In many countries particularly in the developing world, the stover is used as fuel wood or building (roofing) material, thus alleviating pressure on forest products. The crop is grown without the application of inorganic fertilizers as it can fix atmospheric nitrogen symbiotically in its root nodules. Pigeonpea is also ratoonable, producing two or more harvests per season. In addition, it is grown in mixed cropping systems thus optimizing land use. In these regards, pigeonpea is sustainable and environmentally friendly choice for agricultural production of food and energy balance.