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Manihot esculenta: An Asset for a Better Tomorrow

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Abstract

Cassava is a tuberous root belongs to the family Euphorbiaceae in the tropics. A staple food crop that is heat and drought resistant, rich in carbohydrates also contains vitamin C, beta-carotene, and lysine in its various parts. It is a source of renewable energy which includes biotechnological applications like gene cloning, generic engineering for pest control, cryopreservation etc. It is used in multiple industries and also provides varieties of products like bread, sauce, flour etc. It is grown mostly in South America and African countries. The points stated below gives a brief description about the most promising plant crop cassava.

Introduction

In order to achieve the goal of providing an adequate amount of food resources to the expanding population growth, some of the plants or plant parts could be able to provide a huge contribution if taken into consideration. One of those useful sources is a tuberous root called cassava that is originated from South America. It feeds the ongoing population with varieties of edible items bearing humongous advantages. It helps in maintaining the regulatory system of the body and promotes the immune response. It belongs to a spurge family i.e., Euphorbiaceae, with a height of 1.5-3 meters.

What Is Cassava and Why It Is Important?

The scientific name of cassava is *Manihot esculenta*. It is now considered to be the most promising staple food crop over 80 countries across the world. It is a rich source of carbohydrates i.e., 40% higher than that of rice and contains high amount of calories and a protein content of 25%. It contributes by fulfilling the various needs which includes human and animal feedings and most importantly industrial purposes. Its roots contain moisture (70%), starch (24%), fiber (2%), protein (1%) and other minerals (3%).

Industrial Uses of Cassava

It is used as a dyeing element in various textile industries. Due to its adhesive nature it is also used in pharmaceutical industries where it acts as a bonding agent in making tablets and also used in cement industries to provide adhesive strength. It is considered to be a source of ethanol helps in generating fuel. Cassava peels can also be used to prepare activated carbons. Some of cassava products are cassava bread, cake, sauce, flour etc.

It is a soluble fiber that plays a major role in dietary plans. Its root and leaves contains vitamin C and beta-carotene, lysine respectively. Beta-carotene contains vitamin A that helps the

body to have a healthy skin and boost immune system with better eye vision. As we know, the body can't make lysine itself so we need to obtain such foods to get this amino acid.

Cons of *Manihot esculenta*

Consuming a lot cassava may lead to weight gain and obesity as it is rich in calories. The research says that the leaves, roots and peels of cassava should not be consumed raw as it contains two cyanogenic glycosides like linamarin and lotaustralin. Cyanogenic glycosides are the toxic elements present in the plants. So, the consumption of those plant parts in raw may lead to various intoxications, but can be easily removed during the preparatory process.

Cassava in the Field of Biotechnology

The first transgenic cassava plant was developed by shoot organogenesis which has the potential of viral disease resistance. According to a research, genetic transformation is also done to increase the micro-nutrient and protein content. Use of artificial nutrient media in the method of somatic embryogenesis is also done to make it disease free. It also includes gene cloning, cryopreservation etc.

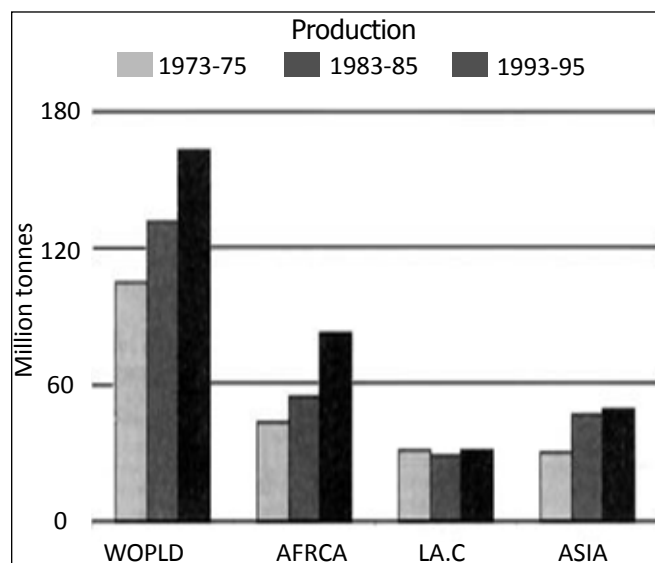


Figure 1: production of cassava per million tonnes



Figure 2: picture of cassava plant

Conclusion

After getting an overview of all the usefulness of cassava, the conclusion we get is, if it is to be grown in almost all countries in a plenty of amount then it may also help in gaining better nutritive choices and feedings and most importantly a better source of income for farmers and increase in employments.

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