The JunCao Technology in Brazil

Arailde Fontes Urben

Introduction

- The “JunCao” technology was adapted by Arailde Fontes Urben at Brazilian Agricultural Research Corporation (EMBRAPA) - Genetic Resources and Biotechnology, localized in Brasília, Brazil.

- She received training on edible and medicinal mushrooms using JunCao technique in Fujian – Fuzhou (China) in 1995.

- This technique has been used since 1996, under tropical conditions.

  - Provides the reuse of abundant and unexplored agricultural resources
  - High productivity and product quality
  - Short cultivation period
  - Production in small areas
  - Organic product.

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Objective

- **Offer an alternative source of food with high quality protein and high nutritional and medicinal value to the general population.**

Benefits

"JunCao" has greatly benefited the circular economy by contributing to the development of several productive activities, including:

1* 

- **Human nutrition**
- **Human health**
- **Reuse of Material**
- **Cosmetics**
- **Handicraft**
- **Agriculture**
- **Food and animal health**
- **Bioenergy**

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1*: https://www.technologytimes.pk/2016/08/19/fungi-a-future-bio-fertilizer

Education and Training

- Educating the public on the benefits of mushrooms and teaching cultivation techniques have had a large positive impact on adoption.
- This includes training courses, seminars, workshops and national and international symposiums.
- The target audience are farmers, undergraduate and graduate students and professionals of different areas (agriculture, medical staff, veterinarians, amongst others).

VII SIMPÓSIO INTERNACIONAL SOBRE COGUMELOS NO BRASIL
VII INTERNATIONAL SYMPOSIUM ON MUSHROOMS IN BRAZIL
VI SIMPÓSIO NACIONAL SOBRE COGUMELOS COMESTÍVEIS
VI NATIONAL SYMPOSIUM ON EDIBLE MUSHROOMS
Manaus - AM, Brasil, 12 - 15 de outubro - 2013
October 12 - 15, 2013

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International Simposyum on Mushrooms in Brazil

II Second international symposium on mushrooms in Brazil

On the left Prof. Dr. Lin Xhanxi on the right Prof. Dr. Lin Yuexin

On right Prof .Dr. Lin Dongmei, followed by Prof. Dr. Lin Xhanxin, Dr. Jorge L. Gennari (Medicinal Doctor) and Dr. Silvio Crestane (President of Embrapa)

II Second international symposium on mushrooms in Brazil

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- In the last 25 years, Embrapa Genetic Resources and Biotechnology has promoted 53 courses related to the Cultivation of Edible and Medicinal Mushrooms.

- Some of these students, now aplly the technique in their productions, expanding the Brazilian market in many areas, as dietary supplements and cosmetic products.

- Approximately 2000 people from several brazilian states and some students from South America and Central Africa have been trained in the modified “JunCao” technique in the period between 1996-2019.

- The modified “JunCao” technique include the use of local grasses and other inputs such as banana bark, coffee grounds and sugar cane bagasse.

In addition, Embrapa organized:

- 3 workshops
- 9 international symposium
- 1 Seminary (2020)
- Child learning on JunCao technology
- Training courses in Africa

Training course in Ghana - Ocidental Africa

Training course for teenagers in Public school in Brazil

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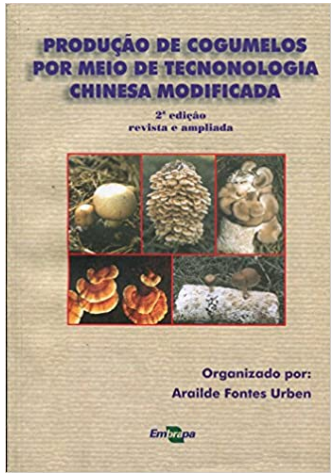
- Published 4 books on mushroom cultivation, using the Chinese "JunCao" Technology:

A 

B 

C 

D 

A,B – Mushroom production throug modified chinese technology (1st and 2nd edition revised and expanded).

C- Mushroom production throug modified chinese technology – Biotechnology and application in agriculture and health. (3rd edition revised and expanded).

D- Recipe book: Mushroom and their delights.

Economic impact

- As for the economic impact, the modified “JunCao” technique, have provided a restructuring of the fungiculture production chain in Brazil.

- This technique have provided the expansion of the commercialization of mushrooms “in natura”.

- Before adoption of the “JunCao” technology, the brazilian market only sold Champignon of Paris in canned format. Now you can find a large variety of mushrooms available for purchase in local markets.

- In 1996, brazilians consumed 30g of mushrooms per capita. By 2021 that number had climbed to 380g per capita.

- Widely available species include:
  - *Pleurotus ostreatus* Shimeji (in white and black variations)
  - *Pleurotus ostreatoroseus* (Salmon Mushroom)
  - *Lentinula edodes* (Shiitake)




Conclusion

- The JunCao technology is innovative and accessible, because it uses low-cost organic substrate, the production cycle is shorter and the mushrooms can be grown in small areas, producing mushrooms of high quality that offer both high nutritional and medicinal value.

- Since 1996, the use of the Chinese JunCao technique, adapted by Embrapa has greatly shaped the Brazilian fungiculture industry.

- This cultivation technology has been passed on to both the general population as well as to industry. This includes farmers, students and professionals in a diverse set of areas. Embrapa has promoted courses, workshops, seminars, national and international symposiums and published several books on the subject.

Conclusion

- Training courses are the first step in making mushrooms available to people in all social classes around the world.
- Adoption requires that people learn of its benefits and seek it as an alternative source of protein.
- It's very important to educate people of all ages; but children benefit the most because they can adopt mushrooms as a food source early in their lifetimes.
- Benefits extend to the ecofriendly techniques associated with production.

Future Goals

- Continue to diseminate the techonolgy to people from different backgrounds in different professions;
- Adapt and promote the technique to low income comunities;
- Intensify the education of children;
- Continue to raise awareness of the population on the nutritional and medicinal benefits of mushrooms;
- Encourage public policies that include mushrooms in school meals and also make it available to families living below the poverty line.

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