

**SECOND ABS CAPACITY BUILDING  
WORKSHOP FOR AFRICA, FROM 3<sup>rd</sup> TO  
7<sup>th</sup> DECEMBER 2007 IN NAIROBI, KENYA**

**BIOPROSPECTING CASE ON  
*THAUMATOCOCCUS DANIELLII* IN  
CÔTE D'IVOIRE**

Document elaborated by Pr. N'GUESSAN K. Edouard  
(University of Cocody-Abidjan)

Presented by : BROU YAO BERNARD, ABS National Focal  
Point (COTE D'IVOIRE)

# OUTLINE OF THE PRESENTATION

- **NAME AND TYPE OF GENETIC RESOURCE**
- **ACTORS INVOLVED**
- **USE OF THE RESOURCE**
- **ABS AGREEMENT**
- **BENEFITS REALIZED TO DATE**
- **DIRECT CONTRIBUTION TO POVERTY ALLEVIATION**
- **LESSONS LEARNED**

# NAME AND TYPE OF GENETIC RESOURCE



- Typically tropical Plant that lives almost exclusively in thick rainforest;
- Gregarious species forming stands on the sandy soils in the undergrowth;
- In Africa, this plant is found in dense rainforests from Sierra Leone to Cameroon through Côte d'Ivoire;



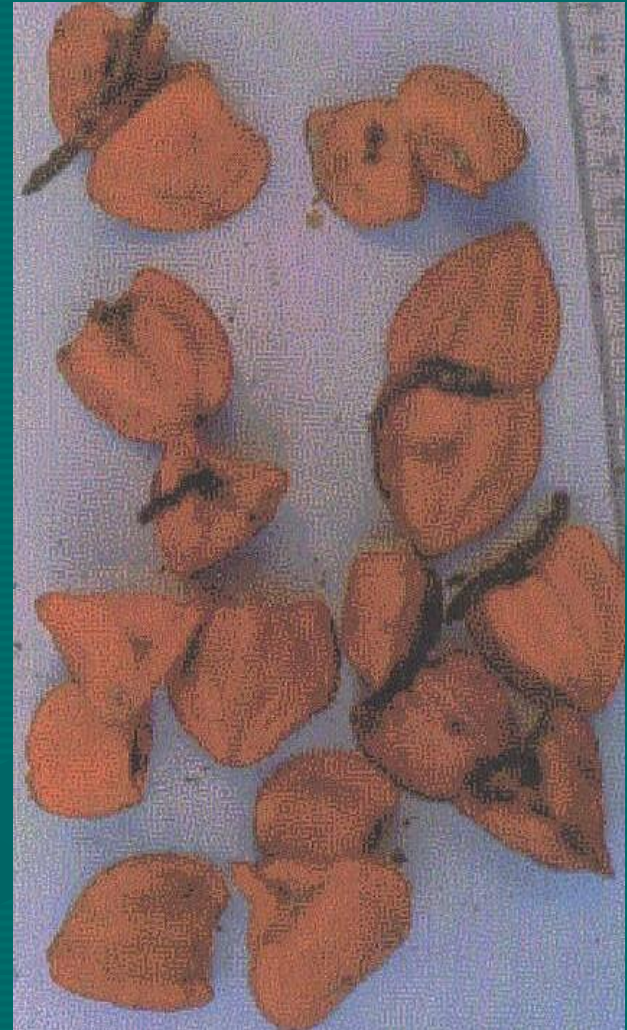


Stand of *Thaumtoccus daniellii*





the plant



Fruits

- Researchers at the University of Ifè were the first to identify its potential as a sweetener.

[Http://www.ictsd.org/pubs/ictsd\\_series/iprs/dakar/Dakar\\_chapter8.pdf](http://www.ictsd.org/pubs/ictsd_series/iprs/dakar/Dakar_chapter8.pdf)

- Extraction of a substance entirely (100%) natural from *Thaumatococcus daniellii* :  
thaumatin
- the gene has been cloned and used as a sweetener
- Thaumatin is composed essentially of two proteins: thaumatin I and II thaumatin which is comprised of 207 amino acids.

- Known in France under the name of SUTIN, pure thaumatin has 2000 to 3000 times the power of sugar (sucrose). [Http://www.amcaningredients.com/pages/scien\\_fr01.htm](http://www.amcaningredients.com/pages/scien_fr01.htm)
- Thaumatin is 100000 times sweeter than sugar cane. [Http://www.fao.org/DOCREP/004/V1430F/V1430F05.htm](http://www.fao.org/DOCREP/004/V1430F/V1430F05.htm) # ch4





# ACTORS INVOLVED

- Local Communities
- Private sector (British firm Tate and Lyle, USA firm Xoma Corp, USA firm Beatrice Foods, Lucky Biotech Corporation)
- Universities (University of IFE, University of california)

# USE OF THE RESOURCE





## Traditional use

- Use for different packages of food including attiéké: hence its name “Attiéké leaves” in Cote d'Ivoire;
- The Oubis, Tai ethnic group, use leaves to relieve tiredness of legs;
- The crushed seeds are mixed with water or palm wine or absorbed as pill for the treatment of lung disease (bronchitis and cough);
- The leaves and fruits are prescribed against poisons.

## Industrial use

- Sweetener in confectionery (chewing gum);
- Composition and aromatic spice mix ;
- Drink (fruit juice, tea, coffee...);
- Dairy Product (yoghurt mousse);
- Ice cream;
- Pastry and biscuits;
- dietary Products and food supplement ;
- Sauces and marinades;
- Cosmetic Products (bath mouth, toothpaste);
- Pharmaceuticals;
- Tobacco Industries;

The background is a solid teal color. In the center, there is a faint, semi-transparent silhouette of two hands shaking, symbolizing an agreement or partnership. The text 'ABS AGREEMENT' is centered over this image.

# ABS AGREEMENT



This bioprospecting case took place before the coming into force of the United Nations Convention on Biological Diversity (29th december 1993).

Before, Biological diversity was considered as humanity resource not as national resource or property of each State.

Therefore, there was no ABS agreement regarding thaumatin



**BENEFITS REALIZED  
TO DATE**

## Exclusively benefits for the genetic resource users

- The patents on thaumatin (No. US 4'011'206 and US 5'464'770) is owned by Tate & Lyle (UK) and Xoma Corp. (USA);
- Beatrice Foods (firm) patented in USA the cloning process of the gene in yeast and the firm obtained with his royalties approximately 25 million USD ;
- The market for sweeteners in low calorie amounted to 900 million USD per year, only in USA.



# DIRECT CONTRIBUTION TO POVERTY ALLEVIATION



The local communities and government did not gain any benefits. So there is no contribution to poverty alleviation.

- Moreover, For several years the British sugar company Tate and Lyle has marketed the product under the name Taline. As this plant does not bear fruit outside its natural habitat, the company imported fruits from its own plantations in Ghana, Côte d'Ivoire...
- The people of Western Africa received nothing in terms of profit sharing.

- In addition, the fact that researchers of Lucky Biotech Corporation and the University of California received a patent for all fruits, seeds and vegetables containing the transgenic gene that produces thaumatin, it is highly likely that user countries will no more come in countries of origin to access the genetic resource.



The background is a solid teal color. In the center, there is a faint, semi-transparent silhouette of two hands shaking, symbolizing agreement or partnership. The text "LESSONS LEARNED" is centered over this image.

# LESSONS LEARNED

There was no benefit sharing regarding bioprospecting on thaumatin and to my mind it is due to:

- Absence of national ABS regulation;
- The lack of knowledge relating to biological resources economic value by local communities;
- The poor mobilization of benefits arising out of the utilization of genetic resources.

THANK YOU

CHOUKRAN

A faint, semi-transparent image of two hands shaking is visible in the background, centered behind the text. The hands are rendered in a light teal color, matching the background, and are positioned as if in a firm handshake.