

# **GMO Plans**

**Titles of the Projects in Poland**

# Title of the Project

**Application of genetically modified poplar trees (*Populus trichocarpa* L.) with changed biomass production properties into field**



014

# Genetically modified poplar trees

- Field experiments can prove correlations that occur on the level of basic plant living processes regulation.
- In a future, application aim of the project is production of wood, paper and ethanol (bio-fuel) using plants that confer higher pathogen resistance and biomass production and reduction in the use of plant protection toxic chemicals

Transgenic Poplars growth on  
area 1200m<sup>2</sup>. The distance is  
ke s at

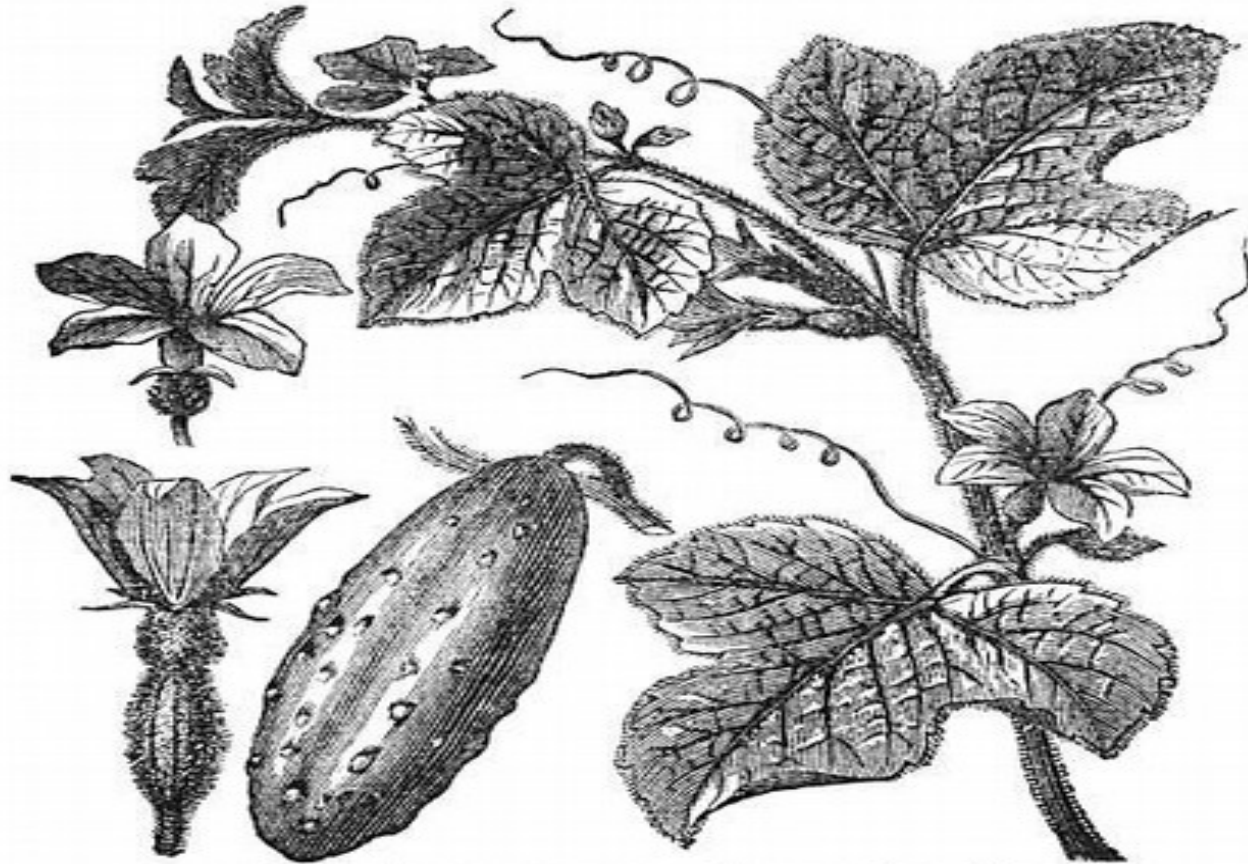


# Title of the Project

## Comparative analysis of morphological

chara  
(C

per



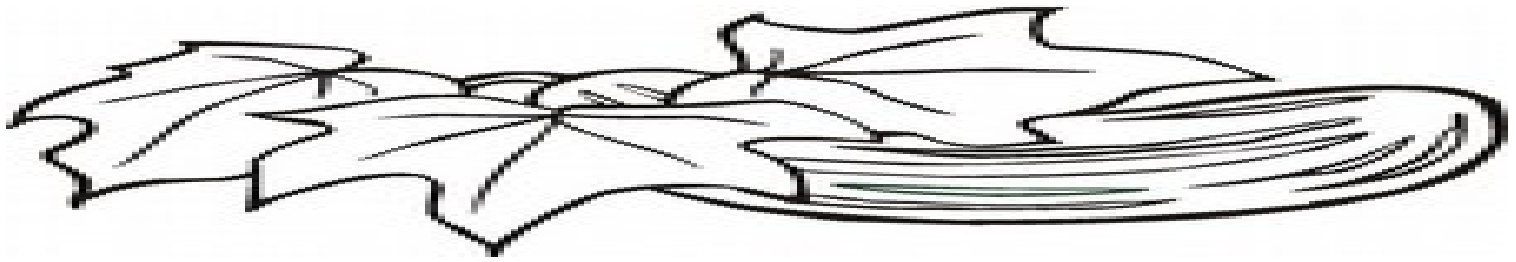
Concombre commun. (*Cucumis sativus*).

From application: Conducting of the experiment in open field conditions is important for the following reasons:

- (1) GM lines derive from an old field cucumber cultivar, well adapted for growing in open field and
- (2) experimental data will be compared with those obtained for non-GM lines obtained by methods commonly used in breeding, cultivated at the same time in Experimental Field of Department of Plant Genetics Breeding and Biotechnology Warsaw



Size of the site (m<sup>2</sup>):  
288 m<sup>2</sup> with buffer zone and 160  
m<sup>2</sup>

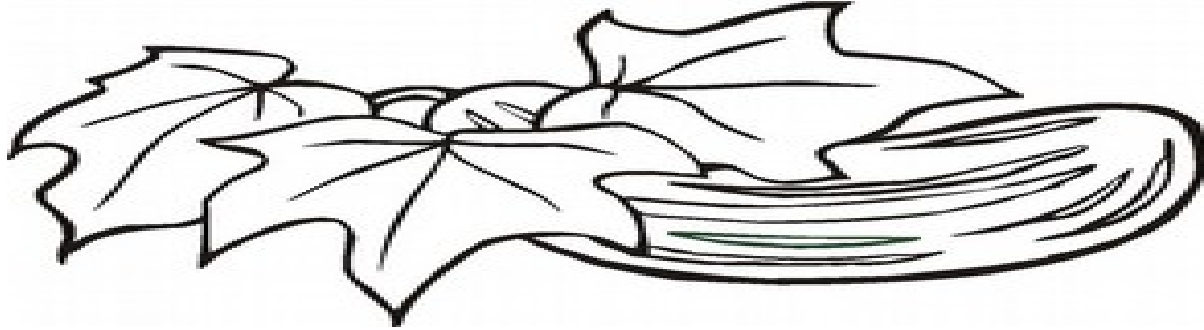


## **Brief description of any measures taken for the management of risks:**

**Safe release of GMOs into the environment will be carried out according to the following plan:**

- establishment of spatial isolation of GM cucumber plants (a minimum of 1000 m) from the other cucumber crops
- establishment of a buffer zone around GMO field, with a width of 2 m, planted non-GM cucumbers
- labelling of the GMO field (placing of informative boards)
- GM plants will be cultivated on the area monitored for 24 hours
- monitoring of the GMO field twice weekly
- after plant material harvest, plant residues (young fruits, leaves, flowers, shoots and roots) will be utilized and GMO field will be monitored to the end of the next growing season





Description of the traits and characteristics which have been introduced or modified, including marker genes and previous modifications:

Introduced traits:

1. Sweet taste - GM cucumber lines with thaumatin II cDNA expression
2. Enhanced cold tolerance – GM cucumber lines with dehydrin 24 gene expression
3. Kanamycin resistance in two groups of GM cucumber lines used for releasing: (a)

# Flax (*Linum usitatissimum*)



# Flax (*Linum usitatissimum*)

- Since ancient times, flax has been known to be a source of oil and fibres, and it has been cultivated as a dual-purpose plant for a long time
- There is a wide range of possible applications of flax
- The long fibres are used in the textile industry, and the short fibres in paper production, isolation materials and biocomposite production



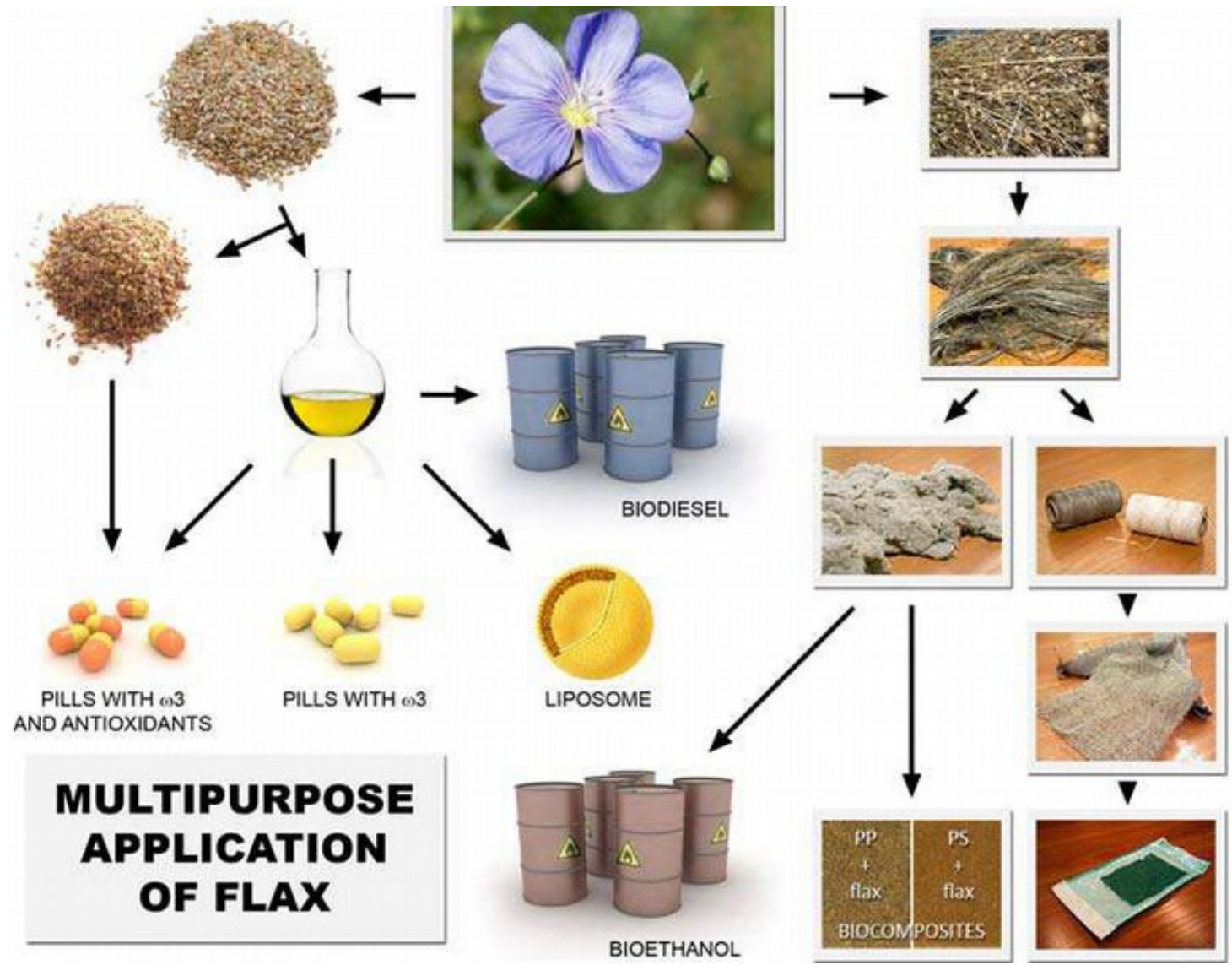
# Flax (*Linum usitatissimum*)



The wooden shives released during flax scutching can serve as an energy source. Flax seeds also have many important

applications, and due to its high nutritional value, it is used in the food, pharmaceutical and

health care industries. The seedcake, which is rich in antioxidants, is used in the



# Title of the Project

## Transgenic flax deliberate release

Proposed period of release:  
15/04/2013 to 31/12/2016

Name of the Institute(s) or Company(ies)

Wroclaw University Of Environmental and Life Sciences

Size of the site (m<sup>2</sup>):

2500 m<sup>2</sup>

Purpose of the release:

The aim of the project is verification of genetically improved transgenic plants properties in field trial; generated plants were enriched in biodegradable plastic (polyhydroxybutyrate). The goal is also to verify in field trial transgenic plants with properties of high resistance to pathogen infection (with overexpression of  $\beta$ -1,3-glucanase) and higher antioxidant capacity



# Title of the Project

## Transgenic flax cultivation

Proposed period of release:

15/05/2011 to 15/09/2016

Name of the Institute(s) or Company(ies)

University of Wroclaw, Faculty of Biotechnology

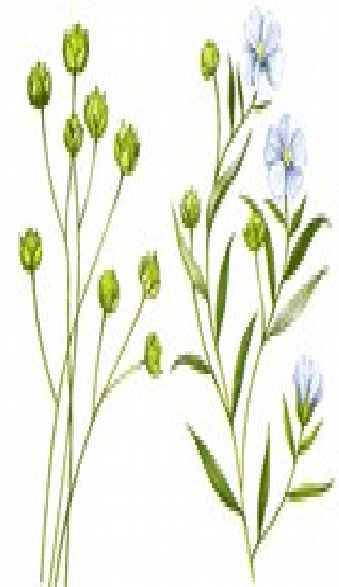
Department Of Genetic Biochemistry;

Size of the site (m<sup>2</sup>):

400 m<sup>2</sup>

Purpose of the release:

The aim of the project is verification of genetically improved transgenic plants properties in field trial; generated plants were enriched in biodegradable plastic (polyhydroxybutyrate). The goal is also to verify in field trial transgenic plants with properties of high resistance to pathogen infection and higher antioxidant capacity in seeds



# Title of the Project Investigation of genetically modified triticale



- Description of the traits and characteristics which have been introduced or modified, including marker genes and previous modifications:  
Tissue material was bombarded with pDB1 plasmid (Becker et al 1994), containing the  $\beta$  - glucuronidase gene (uidA) under the control of actin-1 promoter (Act1) from rice and a selectable marker gene bar (phosphinothricin acetyl transferase) under the control of the CaMV 35S promoter. Bar gene is responsible for herbicide BASTA resistance



**Dziękuję za uwagę**

