



## Improvement in transformation technology in *Brassica napus* through biotechnological tools

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### Introduction

Among the genera of cruciferous plants, the majority of the species cultivated by man are from the genus *Brassica*. Plants from this genus are used as a source of vegetables, condiments, vegetable oil and animal feeds. Some *Brassica* plants are used for vegetable production. However, on a world-wide basis, the most economically important use of *Brassica* species is for the production of seed-derived, vegetable oils. The predominant *Brassica* species grown for oil production is *B. napus*. Seeds of *B. napus* are referred to as rapeseed. Because of the agricultural and industrial importance of plants from the genus *Brassica*, plant breeders are working to develop new varieties with improved agronomic characteristics. While traditional breeding approaches are certainly important, significant improvements in cultivated *Brassica* varieties have been made recently through the introduction of recombinant DNA into the *Brassica* genome by genetic transformation

<http://www.e-conference.elewa.org/agriculture>.



methods. Currently, the most favored methods for transforming Brassica species involve the use of *Agrobacterium*. While the *Agrobacterium*-based transformation methods provide a reliable means for introducing foreign DNA into dicots, there are a number of disadvantages to methods of plant transformation that involve the use of *Agrobacterium*. The invention relates to the genetic manipulation of plants, particularly plants of the genus *Brassica*. Methods are provided for producing transgenic *Brassica* plants involving the introduction of a DNA construct by microprojectile bombardment. The methods find use in the development of improved agricultural varieties of *Brassica* plants through the incorporation of new agronomic traits.

## Objectives

- A more efficient method of transformation is expected to be found for insertion of agronomic good characters into *Brassicaceae*.
- It may become possible to resolve many agricultural problems arising in Pakistan.

## Methodology and result

1. A method for transforming a *Brassica* plant comprising:
  - (a) Providing tissue from a cotyledonary petiole of a *Brassica* plant;
  - (b) Providing a DNA construct;
  - (c) Introducing said DNA construct into a cell from said tissue by microprojectile bombardment;
  - (d) Culturing said tissue so as to produce at least one transformed adventitious shoot; and

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(e) Regenerating said shoot into a fertile, stably transformed Brassica plant

The study intended at producing transgenic brassica through the method discussed above.

### **Potential application**

- An efficient procedure for multi shoot regeneration of brassica napus has been found so the micropropagation of oil seeds will now be swifter.
- Different transformation protocol will help in speedy verdict that which protocol will result more consistent transgenic plant.