Abstract
Now-a-days plant tissue culture *in vitro* provides key opportunities for plant quality enhancement and subsequent economic sustainability. Haploid production of *Brassica* spp. through anther culture proved to be an important approach of tissue culture, during the last decades. Traditionally, plant breeders usually achieve homozygosity of the cross products by using the self-fertilization, a time consuming process. By anther culture, homozygous plant can be produced within a year as compared to the long inbreeding method, which might take 8-10 years. There are many factors that have been found to affect the ability of an anther to undergo successive changes in its developmental path in order to leave the gametophytic pathway and resort to a sporophytic mode of development. Among the factors that play a critical role in the orientation of morphogenetic reaction of anthers cultivated in vitro and ultimately in the regeneration of vitroplants at *Brassica* species the carbohydrate source and its concentration are considered to be of peculiar importance. The carbohydrates act as an energy source and as an osmotic regulator in the culture medium. Although sucrose or glucose represents the main sugars of choice in anther culture media, there are studies in which maltose turned out to be also a carbohydrate source suitable for androgenesis at different species. In the present study the four main types of carbohydrates (sucrose, glucose, fructose and maltose) and its concentrations were tested. The organogenic, embryogenic and calusogenic competences of *Brassica* anthers were highly influenced by the type of carbohydrate source added to NLN basic medium (Lichter, 1982) supplemented with BAP - 8.8 µM and 2.7 NAA µM. The results obtained in our study shows that sucrose proved to be the best for androgenic plant regeneration at *Brassica oleracea* with an optimal concentration of 0.09 M, followed by maltose and glucose, while fructose was less suitable for androgenesis sustainability.

Key words: sucrose, glucose, maltose, cabbage, haploids