Oral presentation: 85

Callus induction in anther culture of selected *Capsicum annuum* L. varieties

R. H. M. S. V. Rajakaruna[1]*, H. M. P. S. Kumari[2] and T. H. Seran[1]

[1]Department of Crop Science, Faculty of Agriculture, Eastern University, Chenkalady, Sri Lanka
[2]Horticultural Crops Research and Development Institute, Gannoruwa, Peradeniya, Sri Lanka
*shakthivishmitharajakaruna@gmail.com

Plant breeding programs of capsicum can be accelerated through double haploid plant production. One of the easier ways to produce double haploid plants is anther culture. This experiment was carried out to induce anther callus of capsicum (*Capsicum annuum* L.) breeding line 1782. For comparison of the behavior of breeding line 1782 in callus induction, Lanka Yellow Wax (LYW), a recommended variety of capsicum was used. Unopened flower buds were collected from the above selected varieties and anthers were excised. Anthers at late uninucleate stage were sterilized and cultured on four different MS media supplemented with 2, 4-D and BA (1 mg/L 2, 4-D with 2 mg/L BA (medium 1), 2 mg/L 2, 4-D with 2 mg/L BA (medium 2), 2 mg/L 2, 4-D with 2.5 mg/L BA (medium 3) and 2 mg/L 2, 4-D with 3 mg/L BA (medium 4) to induce formation of callus. The cultured anthers were incubated in dark for 14 days at 25^0C. After the callus induction, selected calli were transferred into a regeneration MS medium with 5 mg/L BA and 1 mg/L IAA. Regenerating cultures were incubated in 16 hr light conditions at 25^0C and observations were recorded for appearance and greening of calli. The results revealed that medium 1 and also medium 3 had significant effect on anther callus induction than other media. In medium 3, the time taken for callus induction was minimum and also the callus induction percentage was higher than other callus induction media. Although, medium 1 and 3 performed in the same manner for callus induction for both breeding line 1782 and LYW, the highest performance was shown by medium 3. In 1782 breeding line and LYW variety comparison, it was found that LYW variety was better than 1782 breeding line and had a significant (P<0.05) effect on anther callus induction. The callus induction percentage of 1782 breeding line was 59.6% and it was lower than LYW (83.9%). Anther calli formed in medium 3 showed best performance in regeneration medium and calli of breeding line 1782 performed better than LYW variety. In the regeneration medium, calli behaved in different ways. White crystalline calli responded well to the regeneration medium and calli enlargement and, greening at later stage was observed. Light brown coloured calli did not show enlargement and greening compared to crystal calli. The anther calli generation protocol developed in this study could be used to regenerate haploid plants of selected capsicum varieties.

Keywords: 2, 4-D, BA, Anther culture, callus induction, capsicum, MS medium