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Varietal Difference in Plant Regeneration from Cotyledon, Hypocotyl and Primary leaf Cultures of *Capsicum*

LEE, Young-Suk¹ · JONG, Hyun-Koung¹ · JEON, Joo-Mi¹ · HA, Young-Im¹ · CHOI, Young-Ju² · LEE, Sung-Ho^{1,*}

¹Division of applied life science, Gyeongsang National University, Jinju 660-701

²Department of Food and Nutrition, Silla University, Pusan 617-736

Objectives

The genus *Capsicum* of the nightshade family Solanaceae includes five major species and is the most extensively cultivated species and an economically important vegetable and spice crop in Korea.

This study was conducted to screen the highly regenerable *Capsicum* inbred lines.

Materials and Methods

- Forty two inbred lines of *Capsicum* were tested.

Capsicum annuum: 21 lines, *Capsicum frutescens*: 4 lines, *Capsicum chinense*: 7 lines

Capsicum baccatum: 6 lines, *Capsicum pubescens*: 3 line, *Capsicum chacoens*: 1 line

- Culture mediums

Germination medium: MS basal medium +20 g/l sucrose +2.5 g/l phytigel

Regeneration medium: MS salt +B5 vitamin +2 mg/l PAA +5 mg/l BA +20 g/l sucrose +2.5 g/l phytigel

Elongation medium: MS salt +B5 vitamin +1 mg/l PAA + 2 mg/l BA +20 g/l sucrose +2.5 g/l phytigel

Rooting medium: MS basal medium +0.5 mg/l IAA (0.5 mg/l NAA) +20 g/l sucrose +2.5 g/l phytigel for hypocotyl (for cotyledon and leaf)

Results and Discussion

For screening of highly regenerable *Capsicum* lines, cotyledon, hypocotyl and primary leaf segments were cultured on plant regeneration medium. Plant regeneration frequency was depended on each lines and tissues of *Capsicum*. In cotyledon, line CGL0101, CGL0506 and CGL0501 showed highly frequency of plant regeneration giving 81.6%, 72.3% and 71.3%, respectively, whereas twenty lines no responded. In hypocotyl, the highest efficiency of plant regeneration was 84.3% for line CGL0012 and followed CGL0506 (82.8%), CGL0109 (79.3%) and CGL0001 (73.2%). However, ten lines also gave no any response from hypocotyl. Primary leaf tissues also gave similar responses of plant regeneration frequency as cotyledon and hypocotyl. Line CGL0501, CGL0008, CGL0108, CGL0101 and CGL0012 resulted highly regenerable lines giving 78.1%, 59.8%, 56.9%, 56.4% and 56.1% of frequency. However, seventeen lines also showed no responses.