

## OD8. Dynamics of callose deposition during reproductive events in sexual and apomictic *Allium* species

Ki-Won Oh<sup>1)\*</sup>, Chan-Sik Jung<sup>1)</sup>, Hyeun-Kyeong Kim<sup>1)</sup>, Jea-Duck Sung, Chung-Berm Park<sup>1)</sup>,  
Yong-Ho Kwack<sup>1)</sup>, Byung Joo Kim<sup>2)</sup>, Duck-Yong Suh<sup>1)</sup>, Young-Hyun Hwang<sup>3)</sup>

<sup>1)</sup> National Yeongnam Agricultural Experiment Station, RDA, Milyang, 627-130, Korea

<sup>2)</sup> Rural Development Administration, Suwon, 441-100, Korea

<sup>3)</sup> Kyungpook National University, Taegu, 702-701, Korea

### Objectives

Evaluation of the relationship between callose deposition and the mode of reproduction in *Allium* species

### Materials and Methods

1. Materials - *A. senescens* var. *minor*, *A. senescens* and *A. tuberosum*.
2. Methods - Clearing in aqueous clearing medium and observed under fluorescence microscope

### Results and Discussion

Callose accumulation was started at telophase stage of MMC and persisted to two nucleate stage of megaspore in sexual diploid *A. senescens* var. *minor* and apomictic hexaploid *A. senescens*. Callose began to be accumulated in equatorial plane of MMC and restricted in degenerating megaspore in *A. senescens* var. *minor* and *A. senescens*. However, in apomictic tetraploid *A. tuberosum*, callose accumulation was started at diplotene stage of MMC and it was persisted to four nucleate stage of megaspore. During first meiosis of MMC, it was restricted in micropylar half of cell wall of MMC. There was no difference in callose accumulation pattern between sexual and apomictic *Allium* species.

Table 1. Relationship between developmental stages and meiocyte callose deposition in three *Allium* species.

Species	Stages of megasporogenesis					Stages of megagametogenesis	
	L~P <sup>1</sup>	D&D <sup>2</sup>	MI&AI <sup>3</sup>	TI&IK <sup>4</sup>	MeS <sup>5</sup>	4NE <sup>6</sup>	8NE <sup>7</sup>
<i>A. senescens</i> var. <i>minor</i>	0/50	0/50	0/50	50/50	50/50	1/50	0/50
<i>A. senescens</i>	0/50	0/50	0/50	50/50	50/50	0/50	0/50
<i>A. tuberosum</i>	0/50	45/50	50/50	50/50	50/50	37/50	0/50

<sup>1</sup>L~P : leptotene, zygotene and pachytene      <sup>2</sup>D&D : diplotene and diakinesis

<sup>3</sup>MI&AI : first metaphase and first anaphase      <sup>4</sup>TI&IK : first telophase and interkinesis

<sup>5</sup>MeS : two nucleate megaspore      <sup>6</sup>4NE : four nucleate embryo sac

<sup>7</sup>8NE : eight nucleate embryo sac

\* Corresponding author --- TEL: 055-350-1232, E-mail: ohkw1004@rda.go.kr