MODIFICATIONS OF THE *SINAPIS ALBA* (L.) MERISTEM DURING FLORAL TRANSITION: PRODUCTION OF POLYCLONAL ANTIBODIES AGAINST HIGHLY CONSERVED SEQUENCES OF PECTIN METHYLESTERASES

S. SOBRY[1], **A. HAVELANGE**[2], **G. BERNIER**[2] **and P. VAN CUTSEM**[1]

[1] Unité de Recherches en Biologie cellulaire Végétale, FUNDP, 5000 Namur, Belgium.
[2] Laboratoire de Physiologie Végétale. Université de Liège. 4000 Liège. Belgium.

Sinapis alba can be induced to flower by a single long day (LD). This LD produces an endogenous multifactorial signal originating in the leaf where the daylength regime is perceived and moving to the apex where it stimulates flowering. However, the known signals cannot completely mimic the multiple changes caused by floral induction at the apical meristem (Bernier *et al.*, 1993).
In tobacco thin cell layers cultivated *in vitro*, pectic fragments strongly promote the flowering process (Marfà *et al.*, 1991). This and other observations raise the question as to whether oligogalacturonides are involved in the *in vivo* control of flowering.
Specific communications between the cells of the apical meristem are essential for morphogenetic switch (Bradley *et al.*, 1996). Ormenese (thesis, 1996) shows that plasmodesmata frequency significantly increases at flowering transition in the apical meristem of *S. alba*, which implies biochemical modifications of the cell wall structure.
We have therefore studied the pectins of the apical meristem cell walls at floral transition, using the 2F4 monoclonal antibody directed against acidic pectins in " egg-box " conformation (Liners *et al.*, 1989). The meristem pectins are largely methyl- and acetylesterified and are only recognized by the 2F4 after enzymatic (PME : pectin methylesterase) or chemical (NaOH) deesterification. More interestingly, a marked but transient decrease of the homopolygalacturonic content of the cell wall occurs between 12 and 20 hours after the start of the LD. This decrease must be due to the release of pectolytic enzymes (PME, PAE : pectin acetylesterases, PG : polygalacturonases) in the meristem as soon as twelve hours after the start of the LD.
Since the pectic fraction of the meristem walls is largely more methyl- than acetylesterified, we started studying the PME expression in the meristem at floral transition. We are raising polyclonal antibodies to highly conserved sequences of *S. alba* PME genes cloned in pet17b (Novagen) and expressed in *E. coli* (BL21 DE3). These antibodies will be used for the immunocytochemical localization of the PMEs on apical meristem sections using colloidal gold and silver staining amplification for light microscopy.

Acknowledgements
This work was funded in part by a FRIA fellowship to S. Sobry.

References
1. Bernier, G., Havelange, A., Houssa, C., Petitjean, A. and Lejeune, P. (1993) The Plant Cell, **5**: 1147-1155.
2. Bradley, D., Carpenter, R., Copsey, L., Vincent, C., Rothstein, S. and Coen, E.S. (1996) Nature, **379**: 791-797.
3. Liners, F., Letesson, J-J., Didembourg, C. and Van Cutsem, P. (1989) Plant Physiol., **91**: 1419-1424.
4. Marfà, V., Gollin, D., Eberhard, S., Mohnen, D., Darvill, A. and Albersheim, P. (1991) The Plant Journal, **1**(2): 217-225.