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Maize Genetics Cooperation Newsletter

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Stomata on maize anthers

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It is common that stomata are present on floral parts. When they are functioning, nectar/water secretion but not gas exchange is their major function (1). Kenda (1952) investigated the stomata on the anthers of many species and found they were distributed on the connective, but generally absent in the filament. We examined anthers at anthesis of maize cultivars Gaspé Flint and Ohio 43 by using cryo SEM and conventional SEM and found stomata on adaxial and abaxial surfaces of the connective (Fig 1), but not on filament nor the surfaces of the four microsporangia. Full opening of stomata as observed under cryo SEM (Fig. 2) indicated they were functioning. Ten anthers from single Ohio 43 plant were counted for the number of stomata, the numbers were 22, 24, 19, 20, 18, 22, 21, 31, 19, and 28 on one side of the connective, which gives an average of 42, with a range from 36 to 62, stomata per anther. The biological significance of stomata on the connective in maize plant is under investigation.

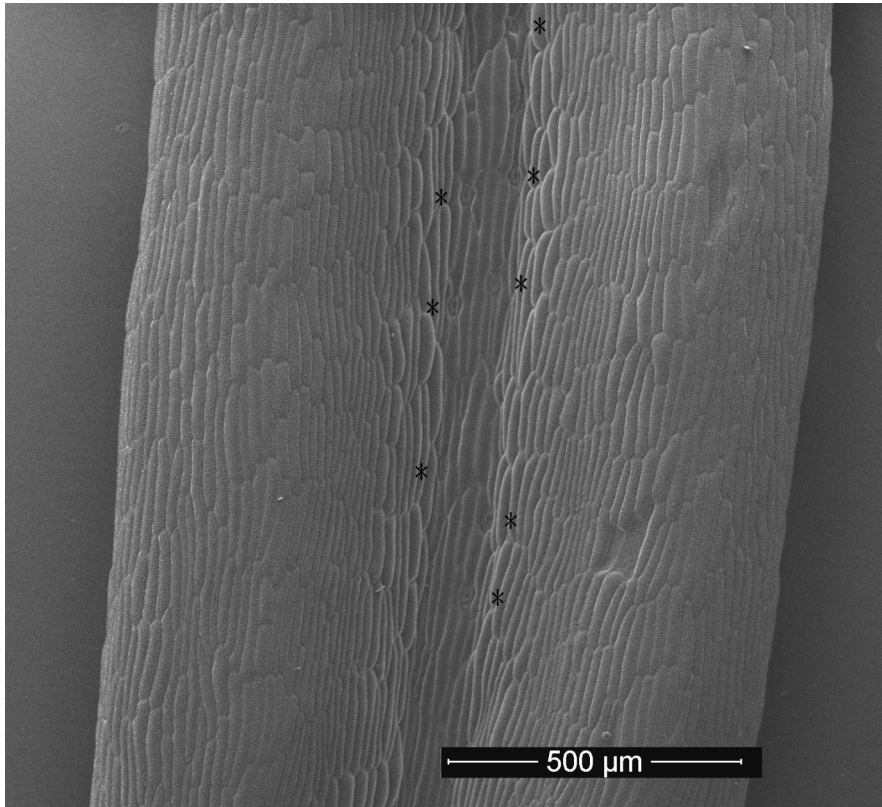


Fig. 1. Distribution of stomata (*) on the adaxial surface of connective of an anther of Ohio 43.

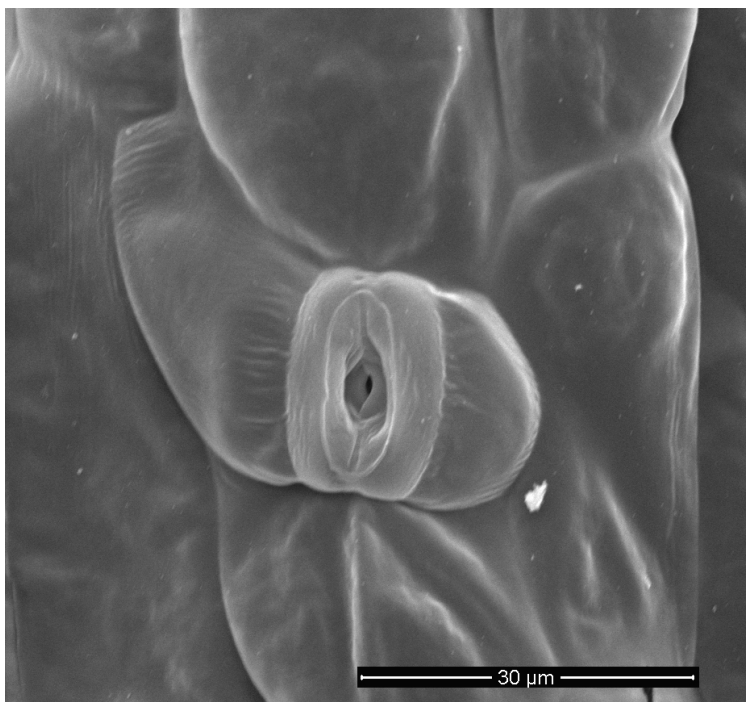


Fig. 2. Higher magnification of a stoma on the connective.

References

1. Isabela Galarda Varassin, Darin S. Penneys and Fabian A. Michelangeli (2008)
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2. Kenda, G. 1952. Stomata and Antheren. *Phyton* 4:83-96.