



EDITORIAL NOTE

The anatomy of some orchid roots, the characterization of tomato mutants and the perception of evolution among graduate students

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Sometimes the limited anatomical information available for some groups of plants can be surprising. This is the case of the Orchidaceae, a quite numerous group of angiosperms with about 25000 species (Pridgeon et al. 2009) that is common in tropical and subtropical regions (e.g., Pabst and Dungs 1977). Considering these species, there is a particular lack of knowledge regarding the roots of the Catasetinae subtribe, which occurs in different altitudes of tropical regions. Cristiano Pedroso de Moraes (UNIRARARAS, Araras, São Paulo) and colleagues have studied the twelve most representative taxa of that group. They were able to determine interesting anatomical variations, such as the occurrence of flavonoidic crystals that are quite characteristic of two particular genera. Furthermore, the velamen also shows some variation and, together with other features, might be employed in taxonomy studies (Moraes et al. 2012).

The present volume also shows an interesting contribution by Carolina Monteiro (USP, Piracicaba, São Paulo) and colleagues who reported biochemical and histological alterations in tomato mutants. It should be pointed out that tomatoes are considered one of the most interesting horticultural crops. No wonder that there exist large quantities of mutants whose study is of great scientific and economic interest (e.g., Gratão et al. 2008). Therefore, it is paramount to characterize these mutants in order to understand the applicability of their future use in, among others, plant developmental and ecophysiological studies (Monteiro et al. 2012). Furthermore, studies like this one, complemented with experiments on the cultivation of agricultural products in different soil conditions, are necessary to provide greater productivity and enhance quality of tomatoes and other horticultural crops (e.g., Cecílio Filho et al. 2011).

Evolution can be considered a hot topic that in recent years has been under some pressure. This comes particularly from the fact that religious groups have tried in different occasions to misrepresent the premises of the evolutionary theory, which was first published by the English naturalist Charles Darwin (e.g., Miller et al. 2006, Dias et al. 2012). Extremists even advocate that this discipline should not be taught in schools. The reasons why evolution is still not accepted worldwide are difficult to understand. When it comes to fossils, the perception of the general public is positive towards the notion of change through time. This is particularly true when new animals that bridge the anatomy of well-established groups are found (e.g., Wang et al. 2010). However, when human evolution is addressed, then the problems of the acceptance of evolution reach their peak. Ivan Dias (Instituto de Biociências, USP) and colleagues tried to understand

the perception of evolution among graduate students in the largest Brazilian University (Dias et al. 2012). This is a quite interesting exercise and shows how an evolutionary-thinking academic atmosphere can be paramount in order to increase the scientific understanding not only on evolution, but also on the complete field of biological sciences.

REFERENCES

- CECÍLIO FILHO AB, REZENDE BLA, BARBOSA JC AND GRANGEIRO LC. 2011. Agronomic efficiency of intercropping tomato and lettuce. *An Acad Bras Cienc* 83: 1109-1119.
- DIAS IA, WILLEMART RH AND MARQUES AC. 2012. Does Evolution matter? A case study in Brazil of the effects of an evolutionary-thinking academic atmosphere in postgraduate students' belief in God/religious belief. *An Acad Bras Cienc* 84: 551-554.
- GRATÃO PL, MONTEIRO CC, ANTUNES AM, PERES LEP AND AZEVEDO RA. 2008. Acquired tolerance of tomato (*Lycopersicon esculentum* cv Micro-Tom) plants to cadmium-induced stress. *Ann Appl Biol* 153: 321-333.
- MILLER JD, SCOTT EC AND OKAMOTO S. 2006. Public acceptance of evolution. *Science* 313: 765-766.
- MONTEIRO CC, ROLÃO MB, FRANCO MR, PETERS LP, CIA MC, CAPALDI FR, CARVALHO RF, GRATÃO PL, ROSSI ML, MARTINELLI AP, PERES LEP AND AZEVEDO RA. 2012. Biochemical and histological characterization of tomato mutants. *An Acad Bras Cienc* 84: 573-585.
- PABST GFJ AND DUNGS F. 1977. *Orchidaceae Brasilienses*, v. 2. Hildesheim: Kurt Schmiersow, 418 p.
- PEDROSO-DE-MORAES C, DE SOUZA-LEAL T, BRESANSIN RL, PETTINI-BENELLI A AND SAJO MG. 2012. Radicular anatomy of twelve representatives of the Catasetinae subtribe (Orchidaceae: Cymbidieae). *An Acad Bras Cienc* 84: 455-467.
- PRIDGEON AM, CRIBB PJ, CHASE MA AND RASMUSSEN FN (Eds). 2009. *Genera Orchidacearum*, vol. 5: Epidendroideae (part two), Oxford: Oxford University Press, 585 p.
- WANG X, KELLNER AWA, JIANG S, CHENG X, MENG X AND RODRIGUES T. 2010. New long-tailed pterosaurs (Wukongopteridae) from western Liaoning, China. *An Acad Bras Cienc* 82: 1045-1062.