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EDITORIAL NOTE

New information on molecular features of the dengue virus type 3, panorama of the amphibian research in Brazil, and a new extinct Cretaceous angiosperm

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This last issue of the Annals of the Brazilian Academy of Sciences (AABC) contains 50 papers on a great variety of subjects, making it very hard to select those that should be highlighted in the present editorial note. This is also a result of the increasing excellence of the manuscripts that are being submitted to this journal, a developing trend in the last decade.

Among the most important contributions of this issue is the paper by Jefferson J. S. Santos (FIOCRUZ, Rio de Janeiro) and collaborators that unravels new molecular aspects of the dengue virus 3 (Santos et al. 2014). That dengue viral infection is a big problem in several countries is nothing new these days. Estimates of humans that are being affected by this disease are in the millions (e.g., Kyle and Harris 2008). Therefore, several researchers are dedicating their efforts in developing new ways on how to deal with this serious health issue, ranging from studies on potential new insecticides (e.g., Oliveira et al. 2013) to a better understanding of molecular mechanisms that ultimately might lead to the development of vaccines (e.g., Blaney et al. 2004). Here, Santos and colleagues have reported a successful way to create a dengue virus 3 (DENV3) and indicate a way on how to overcome the genome instability inherent to flaviviruses (e.g., Polo et al. 1997).

Over the last decades, zoologists have observed that amphibian populations are declining worldwide. Despite the fact that in several instances it is not clear which are the exact causes for this decline, there is a consensus that the main factor is related to alterations of habitats (e.g., Beebee and Griffiths 2005). This is also the case in Brazil, although researchers agree that there is a general lack of knowledge regarding several aspects of those vertebrates found in the country, including geographic ranges and population status (e.g., Pimenta et al. 2005, Pirani et al. 2013). In a thorough review of the literature published from 2001 to 2010, Felipe S. Campos (Universidade Estadual de Santa Cruz, Bahia) and colleagues have provided a panorama of the amphibian studies in Brazil (Campos et al. 2014). One of the conclusions reached by those authors is that the threat regarding amphibian extinctions in the country is underestimated due to the lack of knowledge that affects at least 25% of the known species diversity. They have also identified biases regarding research efforts, including the lack of studies about the conservation of amphibians, which is hampering the development of more effective ways to protect some critical habitats that might avoid the extinction of several endangered species.

Perhaps including some of the most important paleontological deposits of the world, the Santana Group has furnished some exceptionally well-preserved fossils that have contributed to a better knowledge of Early Cretaceous ecosystems (e.g., Kellner et al. 2013). Among those are plants, some of which represent basal angiosperms, the group that predominates nowadays. Flaviana J. de Lima (Universidade Federal de Pernambuco, Recife) and colleagues have made a very important discovery: a new extinct species belonging to the Smilacaceae, the oldest taxon referable to this clade known so far. The specimen comes from the Crato Formation that has yielded a large quantity of delicate fossils, including feathers, lizards, insects and other plant material (e.g., Viana and Neumann 2002). This new discovery contributes to the diversity of early angiosperm which was already on the way to dominate the ecosystems during the Early Cretaceous.

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