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REVIEW

Validation of quality tests for forest seed species

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Abstract

The Brazilian literature on seed germination testing of tropical forest species, although still insufficient, is extensive for species with economical potential. However, this information is still fragmented and often reported in scientific communications of modest circulation. In this summary, we present the results of a validation process for germination tests on Brazilian forest species, which had as a starting point the ample reviewing of current methods, besides exhaustive pre-testing in certified laboratories. Specific protocols were created for each species, including substrate, temperature, seed disinfection, breaking of dormancy, seedling classification and other information. These protocols were sent to research laboratories and accredited by the Ministry of Agriculture, together with seed lots of three distinct qualities. The presuppositions of normality of the residuals and homoscedasticity of the variations were previously tested and the completely randomized factorial design statistical model was applied to the normal seedlings of each species. After this analysis, germination test methods for seeds of *Astronium fraxinifolium*, *Ceiba speciosa*, *Cybistax antisiphilitica*, *Enterolobium contortisiliquum*, *Guazuma ulmifolia*, *Lafoensia pacari*, *Mimosa caesalpiniaefolia*, *Peltophorum dubium*, *Pseudobombax tomentosum* and *Pterogyne nitens*, all forest species of different Brazilian biomes, were considered to be validated.

Keywords: abnormal seedlings, Brazilian Official Rules, statistical assumptions, tropical forest species

Methodology validation processes for seeds of Brazilian forest species require technological and scientific knowledge. However, the fragmentation of the information on the same species and the very basic reporting of data, often only giving the number of germinated seeds, make the official conversion of methods into rules difficult. The inclusion of forest species in official analysis rules has always been outdated in relation to cultivated species, as reported by Rogers (1967) in a brief history of the inclusion of shrub and tree species in the official American, Canadian and European rules.

The rules for analysis of Brazilian seeds (Ministério da Agricultura e Reforma Agrária, 2009) cover a small number of forest species which do not include native Brazilian species. Part of this scenario is due to the fact that the marginal usage of 'forest seeds' did not put any pressure on commercialization and aspects related to the quality of the seeds. National and international issues about environmental impact have stimulated the demand for seeds of forest species, as have the sectors that commercialize this product and demand guarantees related to quality and identity.

In order to make the inclusion of germination test methodologies for Brazilian forest species viable, the Ministry of Agriculture (MAPA), in a partnership with the National Council for Scientific and Technological Development (CNPq/ MAPA/ SDA process: 578207/2008-7) and supported by the Research Foundation of the state of Minas Gerais (FAPEMIG Process: APQ-02 844/09), recommended the execution

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