Abstract
The epiphytic fern Microgramma squamulosa occurs in the Neotropics and shows dimorphic sterile and fertile leaves. The present study aimed to describe and compare qualitatively and quantitatively macroscopic and microscopic structural characteristics of the dimorphic leaves of M. squamulosa, to point more precisely those characteristics which may contribute to epiphytic adaptations. In June 2009, six isolated host trees covered by M. squamulosa were selected close to the edge of a semi-deciduous seasonal forest fragment in the municipality of Novo Hamburgo, State of Rio Grande do Sul, Brazil. Macroscopic and microscopic analyzes were performed from 192 samples for each leaf type, and permanent and semi-permanent slides were prepared. Sections were observed under light microscopy using image capture software to produce illustrations and scales, as well as to perform quantitative analyses. Fertile and sterile leaves had no qualitative structural differences, being hypostomatous and presenting uniseriate epidermis, homogeneous chlorenchyma, amphicribal vascular bundle, and hypodermis. The presence of hypodermal tissue and the occurrence of stomata at the abaxial face are typical characteristics of xeromorphic leaves. Sterile leaves showed significantly larger areas (14.80cm²), higher sclerophylly index (0.13g/cm²) and higher stomatal density (27.75 stomata/mm²) than fertile leaves. These characteristics make sterile leaves more xeromorphic, enhancing their efficiency to deal with limited water availability in the epiphytic environment, compared to fertile leaves. Rev. Biol. Trop. 61 (1): 291-299. Epub 2013 March 01.

Keywords
Fertile leaf, sterile leaf, fern, epiphyte, morphometry, xeromorphism.