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VALIDATION OF Maytenus ilicifolia PHYTOTHERAPEUTIC PROFILES BY TLC-CD AND MACHINE LEARNING

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Brazil is recognized as one of the countries with the greatest biodiversity worldwide, harboring at least 20% of all known plant species[1] (Berlink 2012). The species *Maytenus ilicifolia* Mart. ex Reissek, commonly known as Espinheira Santa, is listed in the National List of Medicinal Plants of Interest to the Unified Health System (RENISUS, from Portuguese)[2]. Due to its pharmacological properties and cost-effectiveness, herbal medicines derived from *M. ilicifolia* leaves are recommended by the Brazilian public health system and are widely used as complementary therapy for conditions such as gastritis and indigestion, among other gastrointestinal disorders. Within the scope of public health, there is an urgent need to develop quality control methods that ensure the integrity of *M. ilicifolia*-based phytotherapeutics. This study analyzed 25 samples of *M. ilicifolia* leaf-based medicinal products. The developed method using thin-layer chromatography combined with computational densitometry and machine learning enabled the classification of the samples into four distinct groups, underscoring the ineffective quality control of *M. ilicifolia* products marketed in Brazil and used as complementary treatments, revealing a pronounced lack of standardization in the plant material, with substances and/or their quantities varying significantly across the analyzed samples, raising serious public health concerns.

Keywords: *Maytenus ilicifolia, Espinheira Santa, phytotherapeutics control, phenolic compounds.*

1 Berlink RGDS (2012) Cienc. Cult. vol.64 no.3, São Paulo.

2 Ministry of Health. RENISUS – Relação Nacional de Plantas Medicinais de Interesse ao SUS. 2009.