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## Assesing Vascular Wilt Disease Progression and Severity in Babaco (*Vasconcellea heilbornii* var. *Pentagona* Badillo) by Artificial Inoculation under Greenhouse Conditions

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### Abstract

Ecuador is a country known for its biological richness, due to a wide variability of climate from polar to tropical, also it has different ecological zones ranging from desert to tropical rainforest. Thus we have, the vast biodiversity in agricultural crops including his ancestors, makes our country unique offering for growing non-traditional species such as Babaco (*Vasconcellea heilbornii* var. *Pentagona* Badillo). However, in recent years, our country has suffered a considerable decline in production volumes of Babaco as a result of the disease known as Vascular Wilt Babaco. In our study we assessed the pathogenicity of twelve *Fusarium* spp. isolates from Babaco plants under greenhouse conditions. To this end, an artificial inoculation procedure was devised and applied to 65 Babaco seedlings in a completely randomised experimental design with five replicates. The substrate used for the experiment consisted of soil-sand-peat mixture (2-1-1) and sterilized at 121°C for two hours. Each *Fusarium* spp. culture was inoculated to plants roots by the immersion method. To monitor the progression of the disease, the scale proposed by Veintemilla (2000) was used. Fungus re-isolation in the laboratory was performed to re-confirm that the tissue was in fact colonised by the original strain used in each treatment. All data were statistically analysed by SPSS v.22 IBM, using ANOVA and Tukey tests ( $p < 0.05$ ). Our results revealed that four of the twelve isolates showed a high degree of disease severity (CHA 1 *F. oxysporum*, *F. oxysporum* COC1, REY1 *F. oxysporum* and TUN1 *F. temperatum*) while the rest of clustered on two groups of medium (6 isolates) and low severity (2 isolates). The four highly severe strains are instrumental for molecular studies e.g. mutant generation, fluorescent microscopy of the *Fusarium*-Babaco pathosystem.

**Keywords:** Babaco, *Fusarium oxysporum*, isolation, pathogenicity test, roots immersion