IJARSCT

International Journal of Advanced Research in Science, Communication and Technology

International Open-Access, Double-Blind, Peer-Reviewed, Refereed, Multidisciplinary Online Journal

ISSN: 2581-9429

Volume 6, Issue 3, February 2026

Impact Factor: 8.2

Influence of Climatic Parameters on the Seasonal Dynamics of *Cladosporium* Spores in Three Agricultural Areas of Madagascar: Ambatondrazaka, Amparafaravola and Betafo

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Abstract: *This study analyzes the influence of climatic parameters on the dynamics of Cladosporium spores in Ambatondrazaka, Amparafaravola, and Betafo (Madagascar). Aeropalynological monitoring (April 1st – September 30th) was conducted using Hirst-type volumetric traps. Identification, based on conidial morphology, allowed for the calculation of the Seasonal Fungus Index (SFI) and daily concentrations.*

Peak concentrations occurred in July and August, reaching maximum values of 2,295 spores m^{-3} in Ambatondrazaka, 206 spores m^{-3} in Betafo, and 139 spores m^{-3} in Amparafaravola. The sensitization threshold (> 100 spores m^{-3}) was frequently exceeded, particularly in Ambatondrazaka where it was surpassed for 58 days, highlighting a significant allergenic risk. Statistical analysis shows that temperature is the primary controlling factor ($r = 0.795$; $p < 0.05$), while precipitation exerts a wash-out effect on atmospheric concentrations. These findings are essential for developing an aeroallergens early warning system in Madagascar..

Keywords*:* *Cladosporium* · Aerobiology · Climatic parameters · Seasonal dynamics · Aeroallergen · Biological pollution

DOI: 10.48175/IJARSCT-31313