

Insects in mangrove swamp rice: from storage to the crop cycle of Guinea-Bissau

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Insect pest damage remains a major constraint to rice production and storage across sub-Saharan Africa. In 2022, a comprehensive study was conducted in Guinea-Bissau to assess insect pest threats in both mangrove swamp rice fields and postharvest storage systems within major mangrove swamp rice-growing regions of Cacheu, Oio, and Tombali. Seed storage surveys involved 64 rice samples collected from 30 farmers across 13 villages, yielding 1,504 insect specimens classified into 13 morphotypes. DNA barcoding confirmed six insect species, including primary pests *Sitophilus oryzae* Hustache, 1930, *Rhyzopertha dominica* (Fabricius, 1792), and *Sitotroga cerealella* (Olivier, 1789), and secondary pests *Tribolium castaneum* (Herbst, 1797), and *Cryptolestes pusillus* (Schönherr, 1817). Four of these species were recorded for the first time in Guinea-Bissau, highlighting their broader presence in West Africa. *Rhyzopertha dominica* was the most abundant species (68%), particularly prevalent in Cacheu and Oio regions, while *S. oryzae* was detected across all sites. Complementary field prospections during vegetative, reproductive, and ripening stages of rice cycle in three villages – one per region – revealed diverse insect populations affecting rice during the growing season. The quadrat and transect methodology were applied at the different sampling points. Morphological taxonomy was applied, though molecular identification proved limited due to database gaps. These integrated analyses offer a rare, holistic overview of pest pressures from field to storage in the region's mangrove swamp rice systems.

Findings emphasize the urgent need for improved pest management, including hermetic storage, cleaning practices, biological controls, and local capacity building for early detection. This baseline study provides essential knowledge for developing targeted, context-specific interventions to safeguard rice production in Guinea-Bissau.

Key words: storage pests, field pests, West Africa, new records.

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