

Innovative Strategies for Termite Management: Development and Evaluation of Effective Baits against *Anacanthotermes turkestanicus*

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Anacanthotermes turkestanicus is a termite species that causes significant damage to wooden structures, cultural heritage sites, and agricultural facilities in Central Asia. Traditional chemical control methods, such as the use of synthetic insecticides, pose environmental risks and often provide only temporary relief. This study explores the development and application of innovative termite bait systems specifically targeting *A. turkestanicus*. Laboratory and field trials demonstrated the effectiveness of these baits in achieving up to 100% termite mortality. The use of local plant materials such as poplar sawdust and termite sternal gland extracts enhanced bait attractiveness and efficacy, making them a sustainable alternative to conventional methods. These findings suggest that bait-based termite management strategies could provide a more environmentally friendly and effective solution for controlling *Anacanthotermes turkestanicus* populations in arid regions, reducing the dependency on broad-spectrum chemical insecticides.

Keywords: *Anacanthotermes turkestanicus*; Integrated pest management (IPM);
Termite control, Bait traps; Termite management.

Termites are among the most destructive pests globally, causing extensive damage to wooden structures, agricultural assets, and cultural heritage sites. Their cryptic lifestyle, which involves nesting within wood or underground, presents significant challenges for effective control. Historically, termite management has

primarily relied on synthetic chemical insecticides, such as organochlorines, organophosphates, and other compounds. These substances have been used in various formulations, including contact poisons, sprays, foams, and impregnated paints, applied directly to termite nests, infested wooden structures, or surrounding soils. Although effective,

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