

## **Damaging insect pests and diseases and their threats to agarwood tree plantations**

### **ABSTRACT**

The cultivation of agarwood tree species such as *Aquilaria* has grown dramatically during the last ten years. This development is driven by the desire to produce sustainable agarwood to meet the high market demand. In the past, the main source of agarwood had been from natural forests, which resources are now declining. Although there are various examples of pests and diseases affecting early plantations, these damages were often overlooked. Recently, the emergence of new pests and diseases in large-scale *Aquilaria* tree plantations has raised concerns among planters and researchers, as the damage level to the trees may vary from unsubstantial to tree mortality. Lack of information on the types of pests and diseases in *Aquilaria* plantations makes it difficult to properly manage these threats, leading to economic losses. This review summarizes the insect pests and diseases known to damage cultivated agarwood trees in various countries including China, India, Indonesia, and Malaysia. As we learn from the cultivation practices of other monoculture crops, these insect pests and pathogens are a major challenge to the healthy growth of agarwood trees. The implementation of an integrated pest and disease management at an early stage of plantation establishment may hold the key to help control and contain these threats from turning into major outbreaks.

**Keyword:** *Aquilaria*; Good agriculture practice; *Gyrinops*; Pest and disease management; Thymelaeaceae