

**Feeding ecology of the invasive dry-wood termite *Incisitermes minor* (Hagen) in Japan**

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One of the important wood-destroying insect groups in the world is the dry-wood termite. Dry-wood termites are considered serious threats to wooden structures and wood products. One of the dry-wood termite species categorized as a serious pest in the United States is the western dry-wood termite, *Incisitermes minor* (Hagen). Colonies of *I. minor* were found in both natural and man-made environments and live entirely within sound dry wood. Due to these ecological characteristics, *I. minor* is easily transported in infested wood products by various human activities. Japan is one of the major countries importing wood and wood-based materials that can serve as a natural habitat of *I. minor*. This exotic species has been reported in a number of locations in Japan and appears to be spreading these days [1] [2].

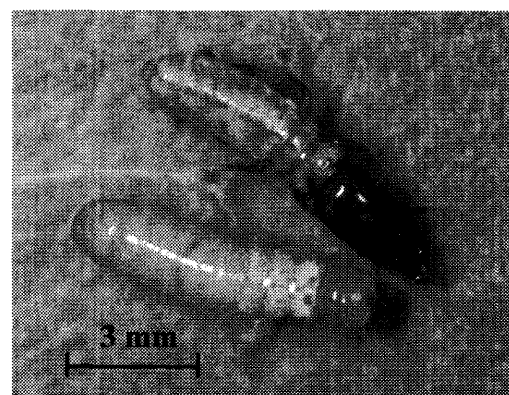


Figure 1: Worker and soldier of *Incisitermes minor* (Hagen)

To identify the parentage assessment of *I. minor* distributed in Japan, ten polymorphic microsatellite markers were developed by using a genomic DNA extracted from the heads of workers. We have successfully obtained the individual DNA structure of *I. minor*, and that *I. minor* distributed in Japan had close genetic relationship with *I. minor* distributed in California, USA [3].

The roofing materials such as rafters, eaves, gables, boards, and beams were the most susceptible parts by *I. minor*. Interior materials such as pillars, window and door frames, thresholds, lintels, floor boards, and tatami, and exterior materials such as wall boards, beams, braces, window frame, and thresholds were the second-most frequently attacked parts as well [4].

*I. minor* was reported to be much more tolerant against high temperatures and arid conditions when compared to other termite species. Temperature and humidity are likely to play important roles in the survival of termites and influences their feeding activities. The optimal temperature and RH conditions for the feeding activities were 35°C and 70%, respectively, and the optimal combinations were 35°C-70% and 35°C-80%. The hottest temperature (40°C) caused termites to become moribund, and their feeding activity decreased rapidly. The coolest temperature (15°C) did not kill the termites, but did reduce the feeding activity [5].

Lastly, we determine the resistance of ten commercial wood species commonly used in Japan against *I. minor* such as five Japanese timbers, four U.S. timbers and one Malaysian timber. The ranking of the resistance of the ten commercial timbers against *I. minor* was buna>karamatsu>sugi>western red cedar>Douglas fir>rubber>western hemlock>hinoki>spruce [6].

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