

OR083*X-Ray CT analysis of nest-gallery development of Incisitermes minor***S. Khoirul Himmi**, Tsuyoshi Yoshimura, Yoshiyuki Yanase, Toshiyuki Torigoe, Masao Oya

The biology of the drywood termite, *Incisitermes minor* (Hagen) is poorly understood. To date no published data are available regarding in situ nest-gallery development of *I. minor*. Three naturally infested spruce (*Picea sitchensis* Bong. Carriere) timbers were biannually analyzed by X-ray computer tomography. Two timbers were infested by five pairing reproductives from nuptial flight. Other timber was infested by a group of individuals from outside foraging. CT images revealed that *I. minor* reproductives showed anatomical selectivity in nest-founding activity as well as nest-development, for instance, excavating the chambers in the early wood of sapwood. Structure of initial chambers varied adjusting to anatomical texture of the wood, which resembles a pear-shape and a cashew nut-shape. The first six months CT analyses indicated two kinds of strategies to initiate a new colony; two pairing reproductives distributed the energy to brood and slowed down in foraging simultaneously and other three concentrated in foraging. The pairing reproductives showed no hibernation period and continuously excavated the galleries in the first six months. The nest-gallery was excavated cavernously in a particular annual growth ring where the breeding chamber was established. All the chambers showed significant accretion in volume and structure. After one year, one pairing reproductive showed no brooding activity, while the other four had 2 - 5 new colony members. The infestation by a group of individuals isolated from its natal nest resulted in showing the different nest development pattern with that of the nuptial flight infestation. The group established the first chamber, excavated transversely in several growth rings. After one year, nest-gallery systems were established which consisted of seven chambers with extensive galleries across both sapwood and heartwood. Young colony members were encountered, which indicated the emergence of supplementary reproductives.