**Article: Reliability of sonic tomography to detect agarwood in Aquilaria microcarpa Baill.**

**Abstract.** Gaharu, or agarwood, is a valuable nontimber forest product. Due to its economic value, agarwood has been subjected to overexploitation in Indonesia’s natural forests. The traditional practice for harvesting agarwood is to fell trees without any reliable techniques for predicting that agarwood is present. Sonic tomography may represent a technique to detect agarwood in a tree before felling it. A study was conducted to evaluate the reliability of sonic tomography (Picusâsonic tomography) to detect agarwood within Aquilaria microcarpa trees. Thirty-five A. microcarpa trees (diameter ³15 cm) at an experimental forest area in Carita, Banten Province, were selected as sample trees. Four to six transducers were placed at measuring points around the trunks of sample trees at 20, 130, and 200 cm from the ground. The transducers were connected to a software system that could record sonic wave velocities within each sample tree and then convert the data into colored images. The results showed that sound wave velocities within sample trees ranged from 400 to 900 m/s with average value 700 m/s. There were no significant differences of sonic wave velocities among measuring points. Sample trees with high sonic velocity tended to have dark-colored tomographic images (dark brown), while the lower sonic velocities were denoted by light colors (green, violet, blue). These results respectively corresponded to healthy and deteriorated conditions of the sample trees. In conclusion, sonic tomography shows sufficient reliability.

Keywords: Agarwood ▶ Aquilaria microcarpa ▶ Sonic tomography ▶ Sonic wave velocity

Reference:


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