UNIVERSITI TEKNOLOGI MARA

WETTABILITY OF KELEMPAYAN (*Neolamarckia cadamba*), SESENDUK (*Endospernum diadenum*) AND LUDAI (*Sapium baccatum*), USING DISTILLED WATER, UREA FORMALDEHYDE AND PHENOL FORMALDEHYDE

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ABSTRACT

Wettability of wood material is usually evaluated with contact angle, which provides an adverse measure of wettability. Understanding wetting behavior and surface coverage of resins on a wood surface is important to obtain satisfactory adhesion and optimize adhesive application for wood composite manufacturing. Distilled water, urea-formaldehyde (UF) resin and phenol-formaldehyde (PF) resin were used in order to determine contact angle on kelempayan (*Neolamarckia cadamba*), sesenduk (*Endospermum diadenum*) and ludai (*Sapium baccatum*) wood surfaces. A sessile drop test was applied with a disposable pipette. A digital camera was used to capture images of liquid drops within 30 seconds. The images were recorded and measured by UTHSCA Image Tool software. The information of wetting behavior of new species for wood based materials needs to discover because it was fundamental study before further feasible products were manufactured. The results indicated that the woods surfaces have a good wettability characteristic, which the contact angle of distilled water gave the smaller value as well as UF and PF resins. The contact angle of distilled water for sesenduk, kelempayan and ludai were 28.12°, 19.15°, and 16.86° and mean while the contact angle of PF for ludai, kelempayan, sesenduk 56.04°, 45.90°, 42.47° and contact angle of UF for kelempayan, sesenduk, and ludai were 55.12°, 42.04°,and 38.26° respectively. The smaller the contact angle gave better wettability while the larger the contact angle gave poor wettability.