BUFFER CAPACITY EFFECTS OF *Delonix regia* AND *Hevea brasiliensis* EXTRACTIVES ON REACTIVITY OF SELECTED ADHESIVES

By

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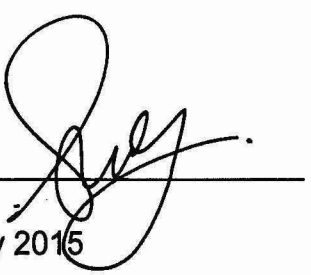
Signature of Candidate : 

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ABSTRACT

Buffer capacity of *Delonix regia* and *Hevea brasiliensis* are expected to be different according to species where *Hevea brasiliensis* contains mostly latex and *Delonix regia* contains mostly essential oils causing different impact and different pH value. This phenomenon leads to differing behaviour and cure properties for urea formaldehyde and phenol formaldehyde. To ensure good bonding quality between resin and substrate, different glue mix formulation is needed. Both wood species has been proven to have an effect with gelation time that reduces the time taken for the curing of urea and phenol formaldehyde. Curing time of urea and phenol formaldehyde was significantly influenced by the extractive content and the pH value of both *Delonix regia* and *Hevea brasiliensis*. The pHs value obtained for *Delonix regia* according to samples mean value for chips are 4.79, flakes are 4.95 and sawdust are 4.74 respectively. Whereas pHs for *Hevea brasiliensis* according to samples of chips are 5.77, flakes are 5.84 and sawdust are 5.66. This affects the curing rate of urea formaldehyde and phenol formaldehyde by decreasing the curing time for both selected adhesives whereby the *Delonix regia* shows significant effect at less than 0.05 significant for both urea formaldehyde (0.047) and phenol formaldehyde (0.005) differ with *Hevea brasiliensis* that shows no significant effect at more than 0.05 significant for urea formaldehyde (0.067) and phenol formaldehyde (0.205) when using T-Test.

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