

INFLUENCE OF SIREX INFESTATION ON PINUS PATULA TMP PULP PROPERTIES"

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The infection of trees by the wood wasp *Sirex noctilio* and its associated fungus, *Amylostereum areolatum* and the influence thereof on the wood and pulp properties *Pinus patula* was investigated. Various tree classes representing different levels of physiological growth stress are compared with one another. The infection and association between the wood wasp and the fungus is responsible for the dying of trees on a large scale in the Midlands of KwaZulu-Natal. Together with the above stress agents, fire damage to *P. patula* trees was also considered as a possible cause of the deterioration of chemical properties. Chemical analyses to determine the cellulose and lignin contents as well as the levels of extractives were conducted by using accepted Tappi standard methods. The thermo mechanical pulping process was used to produce pulp suitable for analysis. The results indicated only negligible differences between tree classes with respect to cellulose and lignin contents. In contrast, highly significant differences were observed for solvent-borne and water-borne extractives. It is evident from the results that *P. patula* trees engage a defence strategy to counter the effects of the infestation and the resulting physiological stress. The results of the chemical analyses lead to the suggestion that trees should not be harvested any younger than the intended rotation age and at the time of harvesting all the biomass, including the infected wood, should be send to the pulp processing facility. The usefulness of a biplot to simultaneously display various tree classes and several chemical properties is illustrated.



Marius du Plessis has a Saasveld Diploma, a BSc Forestry and an MSc Agriculture (Forestry). Research interests include the chemical Kraft pulp processes, genetic improvement of species used in the pulping processes, the contribution and influence of individual species and site to process and pulp quality, laboratory and pilot scale standards setting, testing methods and having some fun making paper. Marius is married to Eureka, and has 3 sons. When he is not making paper, he enjoys caravanning, camping, DVD-ing and Googling.

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