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NITRIC ACID TREATMENT OF EMPTY FRUIT BUNCH (EFB) –EFFECT THE MICROSTRUCTURE AND MECHANICAL PROPERTIES OF THE PRODUCT

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ABSTRACT
Self-adhesive carbon grains (SACG) were prepared from EFB by a low temperature pre-carbonization process. SACG are carbon powder that can be compacted into shape by a compression moulding technique without adding any binder. Green pellets were prepared from SACG and SACG treated with nitric acid (HNO3) with different concentration. Carbon pellets were produced by carbonization of green pellets up to 1000°C in a nitrogen environment using a multi-steps heating profile. The mechanical properties such as hardness (*H*), Young's modulus (*Y*), and microstructure of carbon pellets and commercial sample (Sigradur K) were determined using micro-hardness tester, UMC (Ultrasonic measurement with computer) system, and scanning electron microscope (SEM). The results show that the behavior of H and Y increased linearly with molarity. The behavior seems to be associated with the effect of acid treatment and was indicated on the samples microstructure.

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