RESEARCH PAPER | International Journal of Agricultural Engineering | Volume 8 | Issue 1 | April, 2015 | 66–69
e ISSN–0976–7223 ■ Visit us : *www.researchjournal.co.in* ■ DOI: 10.15740/HAS/IJAE/8.1/66-69

Performance evaluation of a pongamia decorticator

■ G.D. VASANTHA KUMAR AND K. RAJESH

Received : 05.04.2013; **Revised :** 21.02.2015; **Accepted :** 05.03.2015

See end of the Paper for authors' affiliation

Correspondence to :

G.D. VASANTHA KUMAR
Department of Processing and Food Engineering, College of Agricultural Engineering, University of Agricultural Sciences, RAICHUR (KARNATAKA) INDIA
Email : vasant.tech@gmail.com

■ **ABSTRACT :** A study was undertaken to develop a prototype for decortication of pongamia pods. One of the most tedious operations in processing of pongamia pods is the decortication or shelling operation. However, moisture content normally affects the handling and processing, such as decortication/shelling. This study was conducted to determine the effect of moisture content on decortication efficiency of pongamia pods using a rotating corrugated drum and stationary concave plate arrangement. A bulk quantity of well dried pongamia pods was obtained from the local village near Tumkur, Karanataka, and this bulk was divided into two groups namely, graded (A) and ungraded (B) samples. These groups were prepared for conditioning by spraying of ordinary water on pods at room temperature by spreading them in a thin layer. After conditioning, the pods were spread out in a thin layer to dry in natural air for about eight hours, to obtain different level moisture content. Moisture content of each sample was determined by oven drying at 105ºC for 24 h. The moisture content levels were found to be 7.5 and 10 per cent (w.b.) for samples A and B, respectively. The samples were subjected to impact and shearing force while passing through the clearance between concave plate and the corrugated drum. The machine operating at an angular velocity of 250 r.p.m., using two different machine clearances. Data obtained on the percentage of kernel damage, percentage of decortication efficiency and capacity of the machine (kg/h), were statistically analysed. Results showed that moisture content and machine clearance have a significant effect on these performance indices. The most effective performance was obtained at moisture content 7.5 per cent (w.b.), at which means of decorticating efficiency, percentage of kernel damage and capacity for sample A and B were 93.36 per cent, 16.97 per cent, 118.70 kg/h for 8 mm clearance and for 9 mm clearance 84.52 per cent, 14.93 per cent, 122.56 kg/h, respectively. The study further showed that development of pongamia decorticating machine with winnower would eliminate the tediousness of the present manual pod cracking methods.

■ **KEY WORDS :** Pongamia pods, Decortication efficiency, Moisture content, Machine clearance, Capacity, Corrugated drum

■ **HOW TO CITE THIS PAPER :** Vasantha Kumar, G.D. and Rajesh, K. (2015). Performance evaluation of a pongamia decorticator. *Internat. J. Agric. Engg.*, **8**(1) : 66-69.