

## ABSTRACT

Mechanical expression of vegetable oils by ghanis and expellers is still a predominant practice in oil industry in India. Moreover, the expellers used in the oil mill are of old Anderson screw design and their design & operational aspects are still not very well understood, with the result that high residual oil remains in the cake, reducing the ultimate oil recovery. With a view to have an insight into the effect of the design and operational parameters of the expeller and also in the methods of heat and moisture preconditioning, the project on mechanical expression of mustard oilseed was undertaken.

Having determined the pertinent physical properties of the mustard oilseed first, its compression behaviour and stress relaxation etc. were studied. Effect of moisture addition, and preconditioning by heat and moisture was seen on the oil recovery of mustard oilseed in the hydraulic press as well as expeller. The overall performance of the expeller as influenced by the seed preconditioning and machine operational parameters was evaluated. It was seen that the quantity of water added, pressure and duration of extraction and wormshaft speed of the expeller affected the oil recovery significantly.

### Key words :

Mechanical oil expression, expeller design features, hydraulic press, preconditioning of oilseed, compression behaviour, oilseed physical properties, oil recovery - factor affecting.