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COMPARISON OF CONE ATTACHMENT AND IRIS END PLATES IN MIXED ROTORVANE-ORTHODOX MANUFACTURE

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The cone attachment to the Rotorvane Roller was developed by the Tocklai Experimental Station for the purpose of improving the twisting and cell rupturing action of the rotorvane machine. Barbora (1965, 1966, 1968) has reported that experiments in India had showed that the tea processed using the cone attachment had more briskness, brightness and hardness and also that the valuations were higher than the teas processed using the iris end plate. The purpose of this experiment was to compare the iris end plate with the cone attachment under conditions of manufacture at St Coombs and to test the applicability of Barbora's findings under these conditions.

MATERIALS AND METHODS

The method of rolling was identical to that of programme 1, outlined by De Silva and Sanderson (1964). The Rotorvane used was a 20 cm (8") Series B model with a shaft speed of 36 rpm. The following treatments were compared:

1. The cone attachment was used with only forward pitched vanes. The sleeve was adjusted to the medium pressure position.
2. The cone attachment was used with six forward pitched vanes and one reverse pitched vane placed centrally. The sleeve was adjusted to the medium pressure position.
3. The iris end plate was used with eight forward pitched vanes and one reverse pitched vane placed centrally. The iris end plate was kept at the medium pressure position.

A constant rate of feeding of rotorvane (about 225 g per revolution of rotor shaft) was maintained for all treatments. The made teas were graded according to the standard commercial practice and BOP and BOPF grades were evaluated by a panel of tasters in Colombo.

RESULTS AND DISCUSSION

Tea manufactured using the cone attachment and iris end plate did not differ significantly in the infusions and in the liquoring characteristics of colour, strength and quality. There were no significant differences observed between valuations using the different treatments. However the dhool outturn from treatment 2 (Table 1) was significantly more than the dhool outturn from treatment 1. The dhool outturn from treatment 3 was not significantly different to the dhool outturns of the other two treatments.

TABLE 1 — *Average dhool outturns for each treatment*

Treatments	Dhool outturns (%)
1	38.5
2	45.3
3	41.2
LSD (P=0.05)	4.5

Moreover, the percentage grade outturns, showed that the production of the BOP grade (Table 2) of treatment 3 was significantly more than that from the cone attachment treatments, but there was no significant difference between treatments for the total main grade outturns, *i.e.* BOP, BOPF and Dust 1.

TABLE 2 — *The average BOP grade outturns for each of the three treatments*

Treatments	B.O.P. grade (%)
1	52.3
2	52.8
3	56.2
LSD (P=0.05)	2.1
(P=0.01)	2.9

It is evident from the results of this experiment that the cone attachment is not superior to the iris end plate in performance under the above conditions of manufacture. This experiment using Rotorvane with the iris end plate was carried out under these conditions because these conditions were found to be more favourable for the production of teas which satisfied the market in respect of appearance and liquoring characteristics.

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