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Dipping oil formulation for grapes

1. Introduction:

The grape berry is naturally resistant to water loss, as it has a heavy hydrophobic bloom consisting of overlapping wax platelets. This outer waxy layer of the cuticle is the structure, which limits the drying rates of grapes. The purpose of the pre-treatment/ dipping treatments is to dissolve or alter the waxy layer or to create small cracks (checking) over the surface of the berry, which would facilitate easy drying. The alkaline oil-in-water emulsion known as 'cold dip' is used in Australia on a commercial scale to produce raisins. It was reported that the dipping oil mainly consisted of ethyl esters of fatty acids. Since all the requirements of the dipping oil for the raisin industry in India were being met by imports from Australia efforts were made at CFTRI to prepare the dipping oil consisting of mixed esters from vegetable oils. Using this product studies were carried out and got good results in drying of "Thompson seedless" grapes.

2. Raw material and packaging materials:

Raw materials used in the product preparation are edible vegetable oils, ethyl alcohol and few other chemicals.

3. Plant and Machinery:

Principal equipments: Laboratory items like reflux assembly, distillation assembly, water sink, etc

Auxiliary equipments: Quality control laboratory, working table, balances, etc.

4. Process in brief:

Vegetable oil → Refluxing → Separation of esters → Washing →
Stabilizing → Storing in containers

5. Project Cost – Fixed Cost – Working Capital (Rs. '000)

(Estimate for a model project):

a) Building (30 m ²)	100.00
b) Plant and machinery	75.00
c) Auxiliary Equipments	25.00
d) Pre-operative expenses	25.00
Total Fixed Capital	225.00
Working capital margin	25.00
Total Project cost	250.00

Means of Finance	
- Long term loan	150.00
- Promoter's contribution	100.00

6. Production Capacity-(estimate):

Suggested economic capacity:	3.5 kg product per day
Working:	200 working day/ annum
Approximate cost of production:	Rs. 90/- per liter
Suggested selling price:	Rs. 150 -200/- per liter

- 7. Usage:** A 2% emulsion can be made by using the above product dispersing it in suitable strength of alkaline solution and using it for dipping (cold dip) the grapes prior to drying for 5 min.