

Central Food Technological Research Institute
Mysore – 570 020

2-hydroxy-4-methoxy benzaldehyde, a natural flavourant from Swallow roots
(*Decalepis hamiltonii* Wight & Arn)

1. Introduction:

Decalepis hamiltonii is a monotypic genus found in the Deccan (South) peninsula mostly in the forest areas of Eastern and Western Ghats. It is a climbing shrub and the roots are fleshy and cylindrical (1-6 cm diameter) in shape. The root (swallow root) contains ~90% fleshy matter and ~10% woody core. It can be stored for longer periods and is resistant to micro organisms and insects. It has a strong aromatic odour and sweet taste with tingling sensation on the tongue. It is used in traditional Indian medicine as an appetizer and blood purifier. The sliced root is pickled as such or along with lime fruit where it acts as a flavourant as well as a preservative. The chemical compound responsible for the aroma and taste of *D. hamiltonii* root is 2-hydroxy-4-methoxy benzaldehyde (HMB), which is an isomer of vanillin. Preliminary studies in our laboratory revealed that the flavourant HMB has been developed optimizing extraction and isolation of HMB from swallow roots.

2. Market Potential:

HMB (2-hydroxy-4-methoxy benzaldehyde) from swallow roots could be used as a natural flavourant in beverages, dairy products, cosmetics and perfumes. It could be also used as a natural preservative in many preparations.

3. Raw material and packaging materials

Swallow roots (Roots of *Decalepis hamiltonii*).

4. Plant and Machinery:

Principal equipments: Root washer, wet Comminuting mill, steam hydro extractor, Liquid-Liquid extractor, distillation unit, Jacketed Mixing tank

Auxiliary equipments: Chilled water plant, refrigerated tanks, cooling tower and steam generator.

4. Process in brief:

Swallow roots are grated and subjected to steam-hydro distillation. The organic fraction of the distillate contains HMB as the major volatiles into a solvent extraction employing the preferential solubility of the volatiles into a solvent such as chlorinated hydrocarbon. The volatiles extract is subjected to desolventisation and then allowed to crystallize in a low polar solvent. The crystallized product is HMB which could be used as a flavourant.

5. Project Cost – Fixed Cost – Working Capital (Rs. ‘000)
(Estimate for a model project)

a)	Land & Land development (1000 m ²)	500.00
b)	Building and civil works (235 m ²)	1200.00
c)	Plant and machinery	4377.00
d)	Auxiliary Equipments	400.00
e)	Miscellaneous fixed assets	500.00
f)	Pre-operative expenses	700.00
	Total Fixed Capital	7677.00
	Working capital margin	600.00
	Total Project cost	8277.00

Means of Finance

- Promoter's contribution	2519.25
- Term loan	5757.75

5. Production Capacity-(estimate)

Suggested economic capacity:	1000 kg/8 hr/day swallow roots
Working:	1 shift/day
	180 working day/ annum

6. Technology / Manufacturing Process -Availability

The technology for processing of 2-hydroxy-4-methoxy benzaldehyde, a natural flavourant from Swallow roots (*Decalepis hamiltonii* Wight & Arn) has been developed at CFTRI, Mysore using appropriate equipment optimal product recovery of right quality. The institute has the necessary expertise to provide technical assistance and guidance for setting up the project and implementation, under technical consultancy arrangements.