

Central Food Technological Research Institute
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**The production of Fructooligosaccharides (FOS)
Syrup and Powder**

1. Introduction:

Oligosaccharides are relatively new functional food ingredients that have great potential to improve the quality of many foods. Oligosaccharides are usually defined as carbohydrates with a low degree of polymerization (DP) and consequently low molecular weight. Of all the oligosaccharides known so far, FOS has attracted special attention. FOS is a common name for fructooligomers that are mainly composed of 1-Kestose (GF₂), 1-Nystose (GF₃) and 1^f - fructofuranosyl Nystose (GF₄). FOS possesses several beneficial properties that make their use as food ingredient attractive. They are water soluble, mildly sweet, typically 30% less sweet as sweet as sucrose.

2. Raw material and packaging materials

PDA for culture maintenance, Media for shake flask, Media for fermentor, Chemicals for analysis including acetonitrile, Tricalcium phosphate, Sugar for FOS

3. Plant and Machinery:

Principle equipments: Seed fermentor, Pre-fermentor, Production fermentor, Filtration equipment for down stream processing, FOS Reactor, Vacuum concentrator, Boiler, High performance liquid chromatography, etc.

Auxiliary equipments Water pumps with surge suppressor and relief valve, mounted on a frame.

4. Process in brief:

Inoculum & media ———> Microbial production of FTase ———> Membrane
unit ———> Enzyme ———> Production of FOS syrup/ powder

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

a)	Land & Land development (625 m ²)	156.00
b)	Building and civil works (400 m ²)	1600.00
c)	Plant and machinery	14241.00
d)	Auxiliary Equipments	50.00
e)	Miscellaneous fixed assets	150.00
f)	Pre-operative expenses	1230.00

Total Fixed Capital	17427.00
Working capital margin	1140.00
Total Project cost	18567.00

Means of Finance	
- Promoter's contribution	6419.25
- Term loan	12147.75

4. Production Capacity-(estimate)

Suggested economic capacity:	500 kg syrup and 500 kg powder/ day
Working:	300 working days/ annum

6. Technology / Manufacturing Process -Availability

The technology for processing of the production of Fructooligosaccharides (FOS) Syrup and Powder 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.