



ANALYSIS OF HERBS AND SPICES



SPICES

The term spice refers to any dried part of a plant other than the leaves that is used to season and flavor a recipe but is not the main ingredient.

HERBS

Herbs are the leaves of plants that are used in cooking and can be used fresh or dried.



- **Most spices derive their flavor from volatile oils and, in some cases, a combination of oils and resinoids known as oleoresins.**
- **The characteristic flavor of a spice is imparted by a combination of different chemical constituents such as alcohols, phenols, aldehydes, esters, terpenes, and alkaloids in various proportions.**

The quality of spices & Herbs is assessed by intrinsic (Chemical) and extrinsic (Physical) characteristics of spices.

- **Furthermore, certain quality standards for spices, such as pesticide residue, aflatoxin, heavy metals, solvent residues, sulfur dioxide, and microbiological quality, are mandated.**

Regulatory Bodies: ASTA (American Spice Trade Association), FDA, AGMARK, BIS (bUREAU OF Indian Standards)



A. General analytical method

1. Sieve Analysis
2. Bulk index/bulk density (manual & machine method)
3. Moisture (distillation method)
3. Total Ash

B. Extraction techniques (To determine essential oil content)

1. The modified Clevenger method
2. The Lee and Ogg method
2. Estimation of steam volatile oil

C. Physical Properties

1. Specific gravity
2. Optical rotation
3. Refractive Index
4. Solubility (In Alcohol)
5. Evaporation residue



D. Estimation of oleoresin

(Total extracts or oleoresins more closely reflect flavor profile than volatile oil)

1. Determining the non-volatile ether content
2. Analysis of constituent (Spice specific)
3. High-performance liquid chromatography (HPLC)



E. Estimation of anti-oxidant potential

1. DPPH radical scavenging assay

F. Estimation of fibre

1. Ceramic fibre filter method



When it comes to spice export requirements, the physicochemical qualities remain the most important factor. The physicochemical properties differ depending on the variety, and agroclimatic conditions in the cultivation, harvest, and post-harvest operations.

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