



FLAVORING ORAL FORMULATIONS

TASTES & DRUG CLASSES	FLAVORS
Salty	Cinnamon, raspberry, orange, maple, butterscotch, glycyrrhiza (licorice)
Sweet	Fruit, berry, vanilla
Bitter	Cocoa, chocolate, mint, cherry, walnut, glycyrrhiza (licorice), Raspberry, tutti frutti
Sour	Fruit, citrus, cherry
Oily	Wintergreen, peppermint, lemon, anise
Metallic	Mint, marshmallow
Antibiotics	Cherry, maple, pineapple, orange, coconut-custard, strawberry-vanilla, banana-pineapple
Antihistamines	Apricot, cherry, cinnamon, grape, honey, lime, peach-orange, root beer
Barbiturates	Banana-pineapple, banana-vanilla, cinnamon-peppermint, grenadine-strawberry, root beer
Decongestants and Expectorants	Anise, apricot, butterscotch, cherry, grenadine-peach, strawberry, lemon, maple, orange, coriander, tangerine
Electrolyte and Geriatric Solution	Cherry, grape, lemon-lime, raspberry, lime, root beer, strawberry

There are five techniques for flavoring:

1. **Blending** is the use of a flavor that blends with the drug taste. For example, drugs with acidic taste can be blended with citrus fruit flavors. Bitter tastes can be improved by adding a salty, sweet or sour flavor.
2. **Overshadowing** (masking, overpowering) involves using a flavor with a stronger intensity and longer residence time in the mouth. Examples are wintergreen oil and glycyrrhiza.
3. **Physical** methods:
 - Render a drug tasteless by using an insoluble form of the drug: (e.g.. Metronidazole Benzoate).
 - Make an oil in water emulsion of an oily drug, and flavor or sweeten the external phase.
 - Dissolve the drug in an oil and then make an oil in water emulsion.
 - Use effervescent additives for salty-tasting drugs.
4. **Physical** methods can overcome bad tastes by adsorbing, complexing, or making a pro-drug of the drug, which eliminates the undesirable taste.
5. **Physiological** techniques:
 - Use anesthetizing agents such as menthol, peppermint, sodium phenolate and spearmint.
 - Use additives that cause a cooling sensation (e.g. mannitol, menthol).
 - Use an effervescent formulation.
 - Refrigerate the formulation; this reduces the intensity of the undesirable taste and anesthetizes the taste buds.