

# Natural Colorant Extraction Decision Guide

## 1. Basic Water or Ethanol Extraction

- Best for: Home use, local food markets, teas, beverages
- Suitable for: Sorrel, beetroot, turmeric, annatto
- Pros: Low cost, simple, preserves flavor and color
- Cons: Limited shelf life, color may fade over time

## 2. Oil Infusion (e.g., for turmeric or annatto)

- Best for: Lip balms, soaps, creams, marinades
- Suitable for: Turmeric, annatto
- Pros: Oil-soluble, gentle method, longer shelf life
- Cons: Not suitable for water-based applications

## 3. Powdering via Dehydration and Grinding

- Best for: Tea blends, baking mixes, capsules, soaps
- Suitable for: All dried colorants (turmeric, beetroot, sorrel)
- Pros: Long shelf life (6-12 months), easy to transport
- Cons: Requires drying equipment and grinder

## 4. Microencapsulation (Starter Method)

- Best for: Export, functional food, skincare applications
- Suitable for: Sorrel, turmeric
- Pros: Improves shelf life, protects from light/heat, easy to mix
- Cons: Requires some processing knowledge and materials

## 5. Column Chromatography (Not Needed for This Project)

- Best for: Research, standardization, pharmaceutical use
- Suitable for: All pigments, if high purity is required
- Pros: High precision and purity
- Cons: Expensive, complex, unnecessary for basic production