Gums and Resins: Significance in Nutrition, Medicines and Cosmetics and status of Marketing and Trade

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1.0 Introduction

- Gums and resins - among articles of commerce since ancient civilization
- Most - remained on demand to present day spurred by health consciousness for natural products and lack of suitable replacements
- However, unreliability of supply and inconsistent quality affects increased demand on the international market
- There is need to assist producer countries develop a coordinated strategy for the sustainable development of their natural gums, resins and allied dryland resources, improving rural livelihood and environmental conservation
- NGARA - Established in 2000 to address above need. Present in 16 countries in the Sahel and Horn of Africa
  - Has a medium term strategy 2017-2030; FAO, AFF and engaged with AUC and IGAD

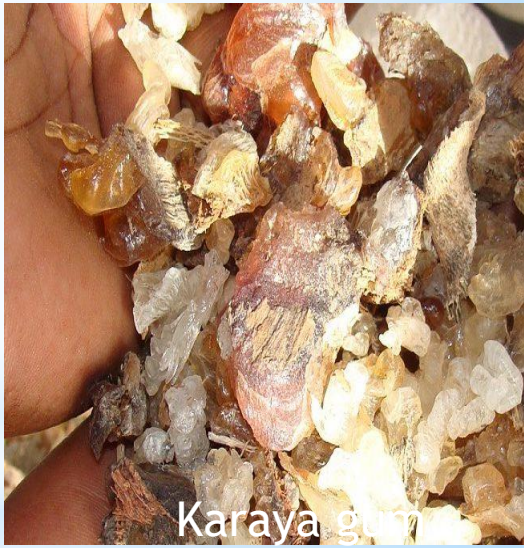
2.0 Plant gums and application in nutrition

- Plant gums - local and industrial applications
- Local uses → most plant gums e.g GA eaten as food by herders
  - makes people feel full; as medicine to ease joint and back pain
- Commercial uses - major area of food application
  - important characteristic - protein component (hydrophobic) and carbohydrate moeity (hydrophilic) makes gums good emulsifiers & stabilisers → food and confectionery (emulsifier and stabilizer, clouding agent and foam stabilizer e.g in beer, prevent crystallization in ice creams)
  - Karaya gum - excellent texturising agent in food products e.g ham & due to its high viscosity used as thickening agent in desserts


Food grade GA

2.2 Plant gums in Medicines

- Major characteristics - Adhesive (binding), emulsifying and stabilising properties and non-digestibility
- Because of its binding properties - formulation of drugs of tablet type
- Because of its emulsifying/stabilisng properties - syrups
- Because it is indigestible - safe dietary fiber, help make people feel full, helping curb cravings and overeating, hence possibly helping with weight loss and reduced cholesterol levels
  - ✔ GA ingestion causes significant reduction in BMI and body fat percentage among healthy adults and that this effect enabled GA be used in the treatment of obesity
  - ✔ ferments in the colon with help from bacteria/microorganisms - helps to essentially “feed” good probiotic bacteria in the gut that have many important roles in the body

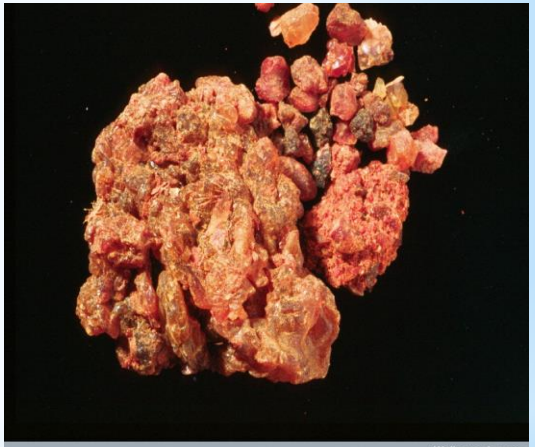


Plant gums in Medicines Cont.

- applied to the skin or inside the mouth to help treat plaque and gum inflammation (gingivitis) and to fight inflammation or redness
- Karaya gum
  - treat constipation bcos ability to swell in intestine causing dilation;
  - bonding properties make it a perfect adhesive for dental implants since it is placed at the base of salicylic patches;
  - has antibacterial and anti-inflammatory properties make it ideal for treating sore throats, ingredient for lozenges.

2.3 Plant resins in medicine & cosmetics

- Most applications of resins - in medicine and cosmetics
- **Myrrh**
  - one of the gifts presented to baby Jesus by shepherds/wise men
  - Local uses – Ink used in quranic schools, burning to repel snakes, and as a medicine
  - Modern medical & cosmetic uses
    - ✔ Most of the resin acids in myrrh are bioactive - used in formulations for indigestion, ulcers, colds, cough, asthma, lung congestion, arthritis pain, cancer, leprosy, spasms, among others
    - ✔ essential oil component - fragrance in cosmetics besides most being bio-active also and used in formulation of medicine
    - ✔ application in various chinese herbals

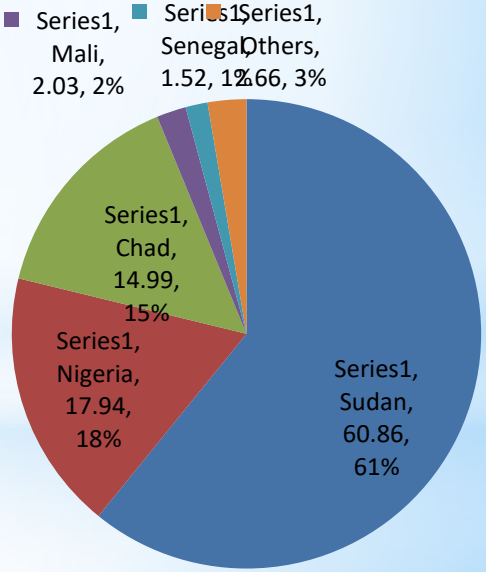


Plant resins in medicine and cosmetics

- **Frankincense**
  - one of the gifts presented to baby Jesus by shepherds/wise men
  - local uses - chewed as gum, burnt as incense, local perfumes, and medicine for a wide range of ailments
  - Modern medical and cosmetic uses
    - ✔ burning incense in churches and mosques; also homes as a pleasant fragrance and festivals e.g in Ethiopia
    - ✔ essential oils - in perfumery; aromatherapy; resinoid as a base and fixative in soaps & allied cosmetics including skin care products
    - ✔ best quality whole lumps Somali & Ethiopian type - chewed due to their lemon scent & sweet taste (believed to improve breathe, digestion & clean teeth)
    - ✔ Flavouring preparations - mouth washes, some beverages that require bitter flavours

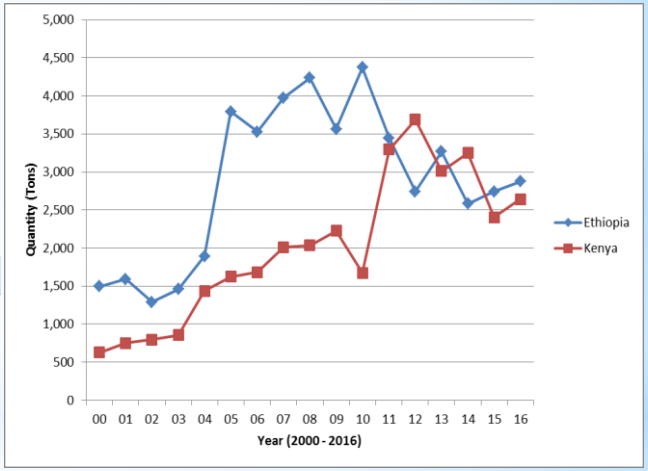
Plant gums - trade and market for gum arabic

- Total annual Gum Arabic Exports from the 15 African Producers which stood at 57,752 tons in 2004 rose over a 15 year period to 96,027 tons in 2016. This is highest export figure recorded in the last 40 years. Within the 15 year period from 2004 to 2018, the average export from the 15 African Countries producing Gum Arabic stood at 76,758 tons
- Sudan, Nigeria & Chad - 94% over the period, Mali & Senegal - 3.6 and other 10 countries - 2.4%
- World demand - 150,000 MT.
- A lot of potential exists; Africa accounts 98% of international exprorts. Potential in member countries far exists current levels of production, which is below 10% in most countries
- Most of the GA exported in raw form and imported processed. Only Sudan and Nigeria processing plants; Chad kibbling (semi processing). Value for processed GA is 8-10 times un-processed. Need for value addition locally



Plant resins - trade and marketing

- World demand for gum resins (myrrh, frankincense & opoponax) ~ 15,000 MT
- Horn of Africa - major player; Ethiopia (54), Kenya (27%) & Somalia (12%) principal producers; Eritrea (5%) & others (2%)
- Major destinations
  - Europe - Germany, France major; Netherlands, Portugal & UK
  - Gulf states - Saudi Arabia, UAE
  - Asia - China, India, Malasya, Singapore
- Most of gum resins - raw & imported in processed form
  - Kenya - two factories for steam distillation, two firms in product formulation. Need for value addition locally



Some questions to consider for discussion

- Identify local uses of the gums and resins already documented in the previous presentation
- What is the status of commerce (trade and markets)
- What is the level of value addition locally? challenges and opportunities for value addition?