



A review on: Moringa leaf powder lactation cookies: A nutrient- rich twist on a classic snack

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Abstract:

Moringa oleifera powder and its use in cookies- A functional food ingredient Moringa oleifera is widely recognized to be a great source of a range of nutrients including vitamins, minerals, and antioxidants. This research explores fortification of cookies formulation through the use of moringa leaf powder. Three types of Cookies with different concentrations of moringa leaf powder were prepared 5%, 10%, 15% respectively and considered with reference to nutritional value, texture and sensory evaluation. The results indicated that the cookies contained enough nutrients even in cookies made with 10% moringa leaf powder and calcium, iron and vitamin C content were significantly higher. The implication is that moringa leaf cookies could be a healthier nutrient rich substitution of ordinary biscuits offering functional food that meets the market for healthy snacks. The study showed improvement of nutrient content especially calcium, iron and vitamin C with not much negative impact to taste and to the structure and texture of the cookies. The Consumer test scores suggested that cookies containing moringa powder in the range of ten percent were well-appreciated by the consumers..

keywords:

Moringa Oleifera, Superfood, Nutrient-dense, Antioxident, Vitamins ,Minerals, Protein-rich

Introduction:

Introduction to drug:

The moringa leaf that comes from the *moringa Oleifera* tree is considered as one of the superfoods because of its high nutrition. Such moringa leaves are full of vitamins, minerals, and other antioxidants, that promote the health and wellness of individuals. They are have a historical use in

Ayurveda and provide advantages like improved energy, enhanced immunity and anti-inflammatory properties. Besides these applications, Moringa is also known for its effects in controlling blood sugar, improving the health of the skin as well as being used to treat bowel problems. Due to its high content of nutrition and its wise use, this plant has become known worldwide as a healthy sustainable solution for other various health issues.

Introduction to cookies:

Health-promoting foods including cookies have recently been in focus and of great interest to consumers, dieticians, experts, and producers. Cookies were classified as one of the most highly distributed bakery products in the market worldwide, because it is ready to eat, cheap, nutritionally rich, available in different tastes and have a longer shelf life. Lactation Cookies are unique foods intended for nursing mothers. Good nutrients improving the entire well-being along with increasing the quantity of lactating are provided by the composition of Moringa Leaf containing cookies. Moringa is a superfood and is filled with many vitamins, minerals, and proteins that energize the body and help with breastfeeding. So along with other lactation-boosting components, Lactation Cookies are a functional and delectable solution for all the dietary requirements of nursing mothers and makes sure that both the mother and baby provided in the best possible way. Exclusively breastfeeding a baby is of great value to both baby and mother. There is a need of enhancing the milk production so that mothers can manage to exclusively breast feed their babies. The leaves of Moringa have been Found to increase breast milk because of the presence of flavonoids and polyphenols. Moringa leaf cookies were specifically chosen as they are preferred by many lactating women, have a good shelf life, and cooking destroys nutrients. Exclusive breastfeeding up to 6 months of age is the best recommended approach to feed a newborn. Breast milk has been observed to contain factors that improve immunity and are better than milk substitute in promoting the intelligence of a child. Benefits which mothers are getting through a breastfeeding their babies include reduction of blood loss and prevention of chronic diseases which include breast cancer, endometrial cancer, diabetes mellitus, ovarian cancer and provides a natural form of contraception in First month after childbirth.

Moringa Oleifera is one type of plant that has the potential to increase breast milk production..

Pharmacognostic account:

Botanical Name: Moringa oleifera

Family: Moringaceae

Common Names: Drumstick tree, Miracle tree, Horseradish tree, Ben oil tree

1.Morphological Characteristics:

- **Leaves:** Moringa leaves are small, green, and oval-shaped, arranged in tripinnate clusters. The leaves are soft, tender, and rich nutrients, making them a staple in herbal medicine and nutritional supplements.
- **Height of the Plant:** Moringa trees grow quickly, reaching heights of up to 10-12 meters, and thrive in tropical and subtropical climates.
- **Flowers:** Small, fragrant, and white to pale yellow, blooming in clusters.
- **fruits:** Slender, triangular-shaped pods, commonly known as drumsticks, that contain seeds.

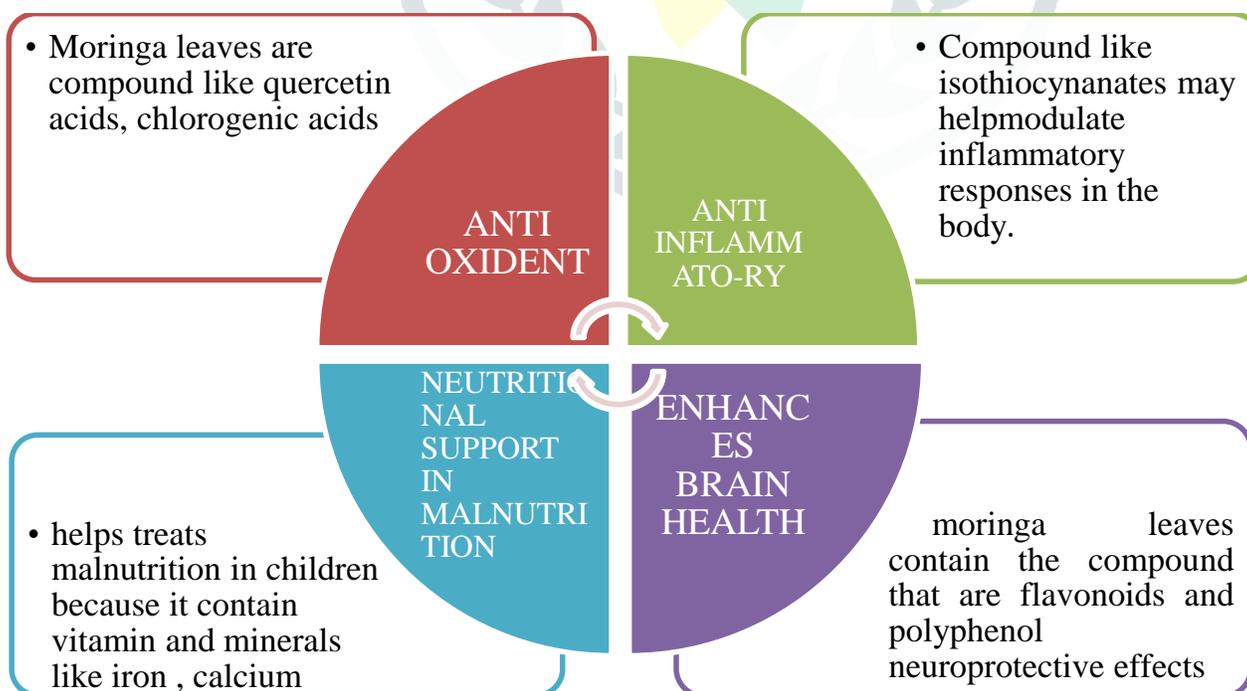
2.Macroscopic Identification:

- **Color:** Fresh moringa leaves are bright green, while dried and powdered leaves are dark green.
- **Odor:** Mild, characteristic herbal scent.
- **Taste:** Slightly bitter to mild, with a peppery aftertaste in some varieties.

3.Microscopic Identification:

- **Stomata:** Anomocytic stomata are present on the surface of the leaf epidermis.
- **Trichomes:** Simple, unicellular non-glandular trichomes can be found on both the upper and lower leaf surfaces.
- **Vascular Bundles:** Moringa leaves have well-developed vascular bundles with xylem and phloem, aiding nutrient transport

RATIONALE:



Material and Method :

INGREDIENT	CATEGORY
Moringa powder	Anti oxident
Jowar	Immunity booster
Oats	Anti oxident
Chia seeds	Protein source
Sunflower seeds	Essential oil
Watermelon seeds	Fibers, vitamin b3 and b9
Flax seeds	Omega 3 fatty acids
Edible gum(Gond)	Boost vitamin D level
Butter	Carbohydrate
Milk powder	Calcium source
Jaggery	Anti neuroprotective
Cran berry	Flavouring agent

Method:

Sample Procurement:

Moringaoleiferaleaves (MOL) was get from farm. The ingredients for the production of the cookies was purchased from main market.

Processing of samples :

The moringa leaves were separated from stalk, washed, dried in a ventilated room for three days. After that the powder is ready for use in cookies.

Prepration of cookies: First add moringa and jowar powder in bowl then mix above all mention ingredients . then cream the butter and milk mix together until the mixture is light and fluffy. Add some water. Then Prepare soft dough. prepare a dough into desired shapes and cut the cookies with the help of cookies cutter. transfer to a greased baking trays. Bake until golden brown for about 10-12 minutes at 180 degree celcius in a baking oven and allow to cool. Then stored and packaging.



Conclusion :

Lactation Cookies, enriched with Moringa Leaf, offer a natural and nutritious way to support breastfeeding mothers. By combining the potent lactation-enhancing properties of moringa with other nourishing ingredients, these cookies provide essential vitamins, minerals, and proteins that promote milk production, boost energy, and support overall maternal health. Lactation Cookies are not only a convenient and delicious option but also a holistic solution for mothers seeking to enhance their breastfeeding experience naturally and effectively.

Based on the result of this study, there were a significant effects of *Moringa oleifera* on baby's weight. Giving Moringa leaf cookies as much as five pieces/day for 14 days are effective to increase the baby's weight which is an indicator of breast milk production.

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