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Curry Leaf Herbal Tea: A Viable Substitute for Traditional Tea Consumption

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Abstract: ***Tea derived from* Camellia sinensis *is one of the most widely consumed beverages worldwide and plays a significant role in social and cultural practices across many countries. However, the growing awareness regarding health, nutrition, and the effects of caffeine consumption has led to an increasing interest in herbal beverages that provide both nutritional and therapeutic benefits (Poswal et al., 2019; Liu et al., 2023). Herbal teas are prepared from various plant parts such as leaves, flowers, fruits, seeds, and roots and are widely recognized for their antioxidant and medicinal properties (Ravikumar, 2014; Patel et al., 2025). Among these plants,* Murraya koenigii *(curry leaves) has attracted attention due to its rich phytochemical composition and medicinal potential. Curry leaves contain numerous bioactive compounds including carbazole alkaloids, flavonoids, phenolics, carotenoids, and essential oils that exhibit antioxidant, antimicrobial, anti-inflammatory, antidiabetic, and hepatoprotective activities (Balakrishnan et al., 2020; Abeysinghe et al., 2021; Franyoto et al., 2024). Traditionally used in Indian cuisine and Ayurvedic medicine, curry leaves are increasingly being explored for the development of functional beverages such as herbal tea. Curry leaf herbal tea is naturally caffeine-free and may provide several health benefits including improved digestion, enhanced immunity, and protection against oxidative stress. Studies have also reported favorable sensory characteristics and high antioxidant activity in curry leaf-based herbal tea formulations (Ubashana et al., 2020). This review highlights the phytochemical composition, medicinal properties, preparation techniques, and potential health benefits of curry leaf herbal tea and discusses its role as a viable substitute for traditional tea consumption.***

Keywords: regular tea risks, herbal tea alternative, curry leaf tea, caffeine free beverages, tea consumption awareness

1. Introduction

Tea is one of the most popular beverages globally and is consumed by millions of people every day. The beverage is mainly derived from the leaves of *Camellia sinensis* and is available in different varieties such as green tea, black tea, oolong tea, and white tea depending on the degree of fermentation and processing (Serafini, 2011; Zohora & Arefin, 2022). Tea contains several bioactive compounds including polyphenols, flavonoids, catechins, and caffeine that contribute to its antioxidant properties and stimulating effects (Mahmood et al., 2010).

Although moderate tea consumption may offer certain health benefits, the increasing intake of caffeinated beverages has raised concerns regarding sleep disturbances, anxiety, and caffeine dependency among some individuals (Yang et al., 2025). In response to these concerns, there has been growing interest in herbal teas that are naturally caffeine-free and contain medicinal plant compounds beneficial for health.

Herbal teas, also known as tisanes, are beverages prepared by infusing plant materials such as leaves, flowers, roots, bark, or fruits in hot water. These beverages have been consumed for centuries in different cultures due to their medicinal properties and pleasant flavors (Poswal et al., 2019). Herbal teas are widely recognized as functional beverages, meaning they provide health benefits beyond basic nutrition (Patel et al., 2025).

Among the many plants used for herbal tea preparation, *Murraya koenigii*, commonly known as curry leaves, has attracted considerable attention due to its nutritional and medicinal properties. The plant belongs to the Rutaceae family and is widely cultivated in India, Sri Lanka, and Southeast Asia (Abeysinghe et al., 2021). Curry leaves have been widely used in traditional medicine for treating digestive disorders, diabetes, and cardiovascular conditions.

Research indicates that curry leaves contain a variety of bioactive compounds including carbazole alkaloids, flavonoids, phenolic compounds, essential oils, vitamins, and minerals that contribute to multiple pharmacological activities such as antioxidant, antimicrobial, anti-inflammatory, and antidiabetic effects (Balakrishnan et al., 2020; Franyoto et al., 2024). Due to these characteristics, curry leaves have significant potential for the development of herbal beverages such as curry leaf herbal tea.

Botanical Description and Distribution

Murraya koenigii is a small evergreen tree belonging to the Rutaceae family. It typically grows to a height of 4–6 meters and is characterized by dark green, aromatic leaves arranged in pinnate form (Bhusal & Thakur, 2021). The plant is native to India and Sri Lanka but is also cultivated in several tropical and subtropical regions including Bangladesh, Nepal, Thailand, and Malaysia.

Curry leaves thrive in warm climates and grow best at temperatures ranging between 20°C and 40°C. The plant can grow in different soil types but prefers well-drained soils with moderate moisture. Traditionally, curry leaves were cultivated mainly in home gardens; however, increasing demand for the plant in culinary and medicinal applications has led to its commercial cultivation in several parts of India (Raghu et al., 2025).

The leaves are widely used in Indian cuisine to enhance the flavor of curries, soups, and vegetable dishes. Apart from

culinary uses, the plant has long been valued in traditional medicine for its therapeutic properties.

Phytochemical Composition of Curry Leaves

Curry leaves contain a wide range of phytochemicals that contribute to their medicinal properties. Several studies have identified the presence of carbazole alkaloids, flavonoids, phenolic compounds, terpenoids, essential oils, and carotenoids in the leaves (Sarswat et al., 2023).

The major phytochemicals present in curry leaves include:

- Carbazole alkaloids (mahanimbine, girinimbine, koenimbine)
- Flavonoids
- Phenolic compounds
- Carotenoids
- Essential oils

These phytochemicals exhibit several biological activities including antioxidant, antimicrobial, anti-inflammatory, and anticancer effects (Balakrishnan et al., 2020).

Table: Major Bioactive Compounds in Curry Leaves

Compound	Biological Activity
Mahanimbine	Antioxidant, antimicrobial
Girinimbine	Anticancer, anti-inflammatory
Koenimbine	Antimicrobial activity
Lutein	Antioxidant
Tocopherol	Hepatoprotective

These compounds play an important role in protecting the body against oxidative stress and chronic diseases (Franyoto et al., 2024).

Herbal Tea as a Functional Beverage

Functional beverages are foods or drinks that provide additional health benefits beyond their nutritional value. Herbal teas are among the most popular functional beverages because they contain natural plant compounds with medicinal properties (Patel et al., 2025).

Herbal teas are prepared by extracting beneficial compounds from plant materials through infusion or decoction. These beverages often contain antioxidants, vitamins, and phytochemicals that may help reduce the risk of chronic diseases such as cardiovascular disorders, diabetes, and inflammation (Poswal et al., 2019).

The popularity of herbal teas has increased significantly in recent years due to the rising demand for natural and plant-based health products. Consumers are increasingly seeking alternatives to caffeinated beverages that provide both flavor and health benefits.

Several medicinal plants including chamomile, peppermint, ginger, basil, and hibiscus are commonly used in herbal tea preparations. Among these plants, curry leaves represent a promising yet underutilized ingredient for herbal beverages.

Curry Leaf Herbal Tea Formulation

Curry leaf herbal tea can be prepared using fresh or dried leaves through infusion in hot water. The beverage retains the natural aroma and flavor of curry leaves while delivering their bioactive compounds in a convenient form.

A formulation study conducted by Ubashana et al. (2020) developed a curry leaf herbal tea blend using a mixture of curry leaves, amla berries, moringa leaves, ginger, celery leaves, and basil leaves.

Formulation Composition

Ingredient	Percentage
Curry leaves	50%
Amla berries	20%
Moringa leaves	10%
Ginger	10%
Celery leaves	5%
Basil leaves	5%

The study reported that the optimized formulation showed high antioxidant activity and favorable sensory characteristics.

Health Benefits of Curry Leaf Herbal Tea

- **Antioxidant Activity:** Curry leaves contain several antioxidants such as flavonoids and phenolic compounds that help neutralize free radicals and protect cells from oxidative damage (Balakrishnan et al., 2020).
- **Antidiabetic Effects:** Research has shown that curry leaf extracts may help regulate blood glucose levels by improving insulin activity and reducing oxidative stress (Abeysinghe et al., 2021).
- **Anti-Inflammatory Activity:** The phytochemicals present in curry leaves possess anti-inflammatory properties that may help reduce inflammation in the body.
- **Digestive Health:** Traditionally, curry leaves have been used to treat digestive disorders such as indigestion, nausea, and diarrhea.
- **Cardiovascular Benefits:** Curry leaves have been reported to reduce cholesterol levels and improve lipid metabolism, which may contribute to improved cardiovascular health.

2. Future Potential and Commercialization

The increasing demand for functional beverages presents significant opportunities for the development of curry leaf herbal tea products. Curry leaves are widely available, inexpensive, and easy to cultivate, making them suitable for commercial production.

Further research should focus on:

- Standardization of formulation methods
- Clinical evaluation of health benefits
- Shelf-life studies
- Consumer acceptance and market potential

3. Conclusion

Curry leaf herbal tea represents a promising functional beverage derived from a widely available medicinal plant. The presence of bioactive compounds such as alkaloids, flavonoids, phenolics, and essential oils contributes to its antioxidant, antimicrobial, and antidiabetic properties. Unlike conventional tea derived from *Camellia sinensis*, curry leaf herbal tea is naturally caffeine-free and therefore

suitable for individuals seeking healthier beverage alternatives.

The development of curry leaf herbal tea also promotes the use of traditional medicinal plants in modern diets. Future research should focus on standardizing preparation methods, evaluating long-term health benefits, and exploring commercialization opportunities for curry leaf herbal tea.

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