Opinion/Perspective
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Insights on the Efficacy and Safety of Selected Herbal Teas

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Abstract: Herbal teas are very common around the world. It has a good therapeutic effect. But due to adulteration, we face an obstacle to using them. The author has collected some clinical trials on commercial herbal tea formulations on the market that have proven their efficacy and safety. So, the future is for herbal medicine owing to people's psychology, minimum adverse reactions, and lower cost. The pharmaceutical manufacturing of herbal tea formulations should be encouraged to use them as add-on therapy or healthy daily beverages at least.

Introduction

The World Health Organization made use of traditional medicines, including herbal remedies, in its 2014–2023 strategy to keep populations healthy by providing access to effective and affordable alternatives to medicine and providing healthcare options consistent with people's cultural practices (1). The importance of this review comes from the prevalence of herbal teas as daily beverages among people at home, at work, or in entertainment places. Various medicinal plants will be discussed in this review, including jewel vine, sappan, bale fruit, ginger, licorice, bitter fennel fruit, anise fruit, fenugreek seed, blessed thistle herb, turmeric, and plants of the Cistaceae family. This review shows whether herbal teas are effective and safe or not. Also, this review focus on the importance of herbal teas in our lives. Herbs have long been used as remedies in traditional medicine. The majority of people on the planet today (between 60 and 80 percent) rely on medicinal herbs for their healthcare. Due to their health-promoting qualities, including anticancer, antibacterial, antidiabetic, anti-inflammatory, and antioxidant properties, herbal teas are widely used in traditional medicine across a wide range of cultures. Along with the expanding health and wellness trend, the market for tea worldwide, particularly herbal teas, is expanding. In many cultures, herbal teas constitute the primary source of dietary antioxidants. Of these antioxidants, polyphenolic chemicals have recently attracted the attention of scientists, along with vitamins and carotenoids. The plant components, preparation method, processing and storage conditions, concentration of bioactive substances, and antioxidant activity of herbal teas all affect these properties. A variety of radical scavenging and reduction capacity assays are used to calculate the in vitro antioxidant potency of a sample and determine the antioxidant activity of herbal teas (2).

Methodology

The author searched a lot of databases including PubMed, Google Scholar, Wiley Online, Scopus, and Science Direct for clinical trials evaluating the efficacy and safety of herbal tea formulations. The reference lists of papers were also hand-searched, and repeatedly to include additional clinical studies. Investigations and Interpretations were made depending on the results of the authors' experiments in previous articles included in this review. Finally,

Microsoft Office Excel software was used to design the following charts that classify the number of included clinical trials each year. It is noted that there are few clinical trials and randomized controlled studies evaluating the efficacy and safety of herbal teas formulations, however, we can see a kind of evolution of research focusing on formulations of herbal teas compared to the past but not at the expected high rate (**Figure 1**).

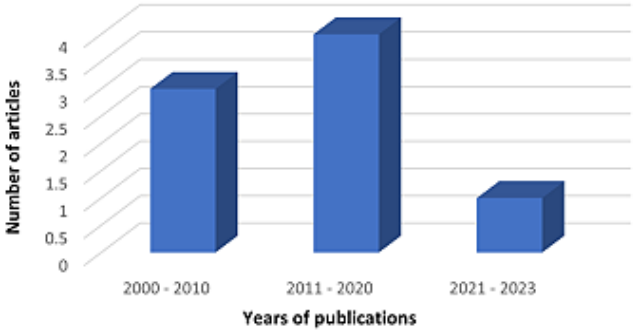

Figure 1. Number of published articles concerning clinical trials on herbal tea formulations.

Herbal Tea Formulations

Herbal teas are a widely consumed beverage around the world and are utilized as therapeutic vehicles in many types of traditional medicine. In its most basic form, herbal tea is a blend of herbs produced from various plants' leaves, seeds, and/or roots (3).

Wang Nam Yen Tea

Women who breastfeed frequently experience inadequate milk supply, especially after Cesarean deliveries. After cesarean delivery, 120 mothers experienced increased breast milk production when drinking Wang Nam Yen herbal tea over 72 hours. Wang Nam Yen herbal tea is used for each meal. Each Wang Nam Yen herbal tea bag contains 500 mg of jewel vine (*Derris scandens* (Roxb.) Benth), 500 mg of sappan (*Caesalpinia sappan* Linn.), 500 mg of bale fruit (*Aegle marmelos* L. Corr.), 500 mg of ginger (*Zingiber officinale* Roscoe), and 500 mg of licorice (*Glycyrrhiza glabra* Linn.) (**Table 1**). The 2D structures of tea contents can be seen in **Figure 2**. Wang Nam Yen herbal tea is a promising traditional medicine used as an alternative to pharmaceutical galactagogues for postpartum women to stimulate milk production (4).

Mother's Milk® Tea

MMT is a well-known, commercially available herbal tea product that was first introduced to the U.S. market in 1978. It is widely consumed by mothers seeking natural ways to support lactation. Typically, mothers drink three to five 1-cup servings of MMT daily as part of their routine. The tea contains a blend of carefully selected herbal ingredients known for their potential galactagogue properties. Each serving includes 560 mg of bitter fennel fruit (*Foeniculum vulgare* Miller ssp. *vulgare* var. *vulgare*, Apiaceae), 350 mg of anise fruit (*Pimpinella anisum* L., Apiaceae), 210 mg of fenugreek seed (*Trigonella foenum-graecum* L., Fabaceae), and 35 mg of blessed thistle herb (*Cnicus benedictus* L., Asteraceae) (**Table 2**). The 2D structures of tea contents can be seen in **Figure 3**. These ingredients have traditionally been used to promote milk production and overall maternal well-being. Additionally, MMT is considered a safe option for both infants and mothers, with no significant adverse effects reported when consumed in moderation (10). However, further studies are needed to fully understand its long-term efficacy and safety in different populations.

Table 1. Ingredients and usage of Wang Nam Yen Herbal tea.

Medicinal Plant	Phytochemical Constituents	Use	Reference
Jewel vine (Derris scandens (Roxb.) Benth)	Flavonoids (toxicarol) Coumarins (robustic acid)	Anti-inflammatory, Anti-microbial, Anticancer, Antioxidant, Immuno-stimulating, Hypotensive.	(5)
Sappan (Caesalpinia sappan Linn.)	Triterpenoids (beta-amyrin) Flavanoids (sappanone A)	Cytotoxic, Antitumor, Antimicrobial, Anti-inflammatory, Antiviral, Hepatoprotective	(6)
Bale fruit (Aegle marmelos L. Corr.)	Alkaloids (Angeline) Coumarin (Alloimperatorin) Terpenoids (Caryophyllene)	Antidiabetic, Antioxidant, Anticancerous, Antimicrobial	(7)
Ginger (Zingiber officinale Roscoe)	Polyphenols (gingerol)	Antioxidant, anti-inflammatory, antimicrobial, anticancer	(8)
Licorice (Glycyrrhiza glabra Linn.)	Phytosterols (sitosterol) Flavonoids (4′,7-dihydroxyflavanone) Saponins (glucuronide)	Antioxidant, Anti-inflammatory, Antitussic, expectorant, Antiulcerative, Antimicrobial, Antiviral, Hepatoprotective, Anticarcinogenic, Antimutagenic, Neuroprotective, Antidepressive	(9)

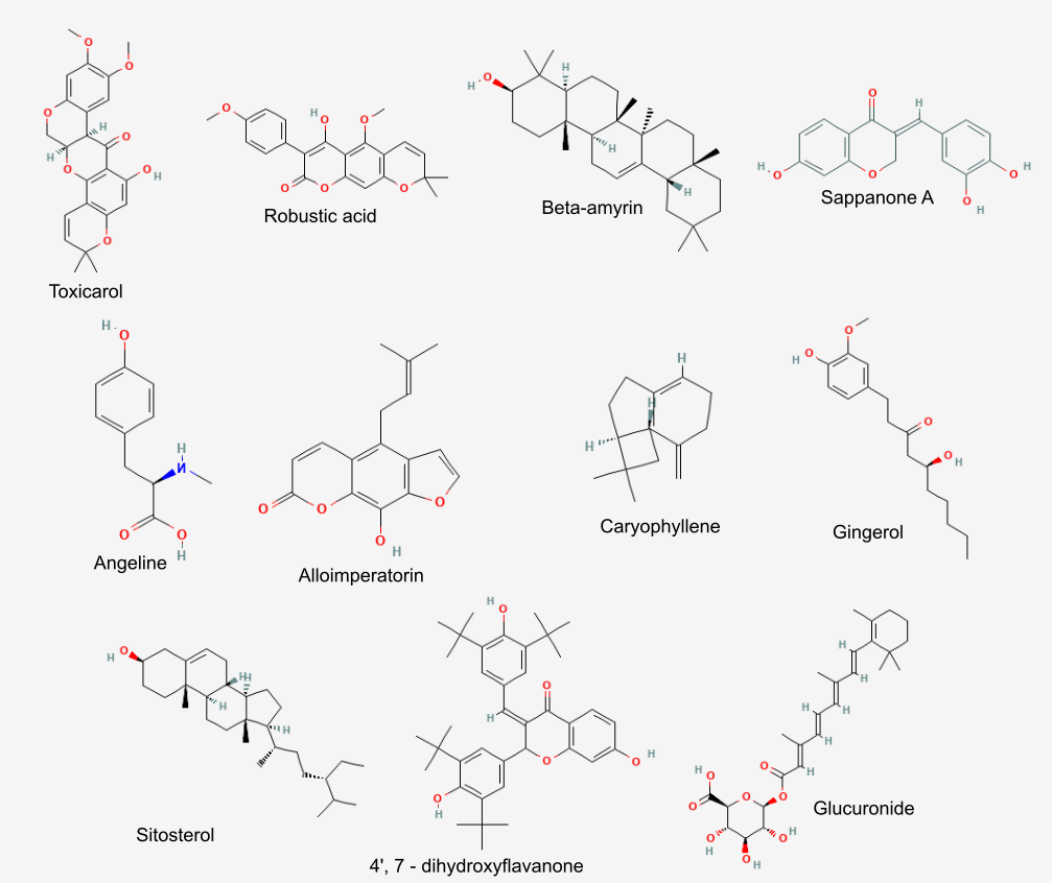

Figure 2. 2D structures of Wang Nam Yen Herbal tea contents.

Table 2. Ingredient and usage of Mother's Milk Herbal Tea.

Medicinal Plant	Phytochemical Constituent	Use	Reference
Bitter fennel fruit (Foeniculum vulgare Miller ssp. vulgare var. vulgare, Apiaceae)	Monoterpene (alpha-phellandrene)	Antimicrobial, Antiaging, Antiallergic, Antiinflammatory, Antiviral, Antimutagenic, Antinociceptive, Antipyretic, Antispasmodic, Anxiolytic, Apoptotic, Antitumor, Cytotoxicity, Diuretic	(11)
Anise fruit (Pimpinella anisum L., Apiaceae)	Volatile oil (trans-anethole)	Antibacterial, Antifungal, Antiviral, Anticonvulsant, Muscle relaxant, Antispasmodic, Antidiabetic, Antioxidant, Antiulcer, Analgesic, Laxative	(12)
Fenugreek seed (Trigonella foenum-graecum L., Fabaceae)	Saponins (disogenin) Alkaloids (trigonelline)	Carminative, Demulcent, Expectoran, Laxative, Stomachic agent.	(13)
Blessed thistle herb (Cnicus benedictus L., Asteraceae)	Sesquiterpene lactone glycosides (cnicin) Flavonoids (luteolin) Volatile oils (p-cymene)	Antimicrobia, Cytotoxic, Antiinflammatory	(14)

Cystus® Tea

Commercially available mouthwashes often contain alcohol and are therefore irritating to patients with mucositis, as they can cause pain and burning. Instead, herbal mouthwashes are often recommended. (15). Cystus® tea could be suitable for clinical practice. Cystus® tea is made from the leaves and small twigs of the Cistaceae family of plants as Halimium halimifolium (16, 17). The Cistaceae family of plants contain polyphenol, flavonoid, and tannin (see **Figure 4**), so they are used as antioxidants (18). Many studies have shown the anti-inflammatory, antioxidant, and antimicrobial properties of Cystus® extracts (19). Cystus® tea is often used for the treatment and

prevention of upper respiratory tract infectious diseases (16, 20). A marked decrease in microbial growth in the oral cavity could be noted after mouthrinses with Cystus® tea (16, 21). Cystus® tea has a mild flavor, and it contains no side-effect-inducing ingredients. The current studies with Cystus® tea show good tolerability (17, 22, 23). The local use of Cystus® tea as mouthwash removes expectations of any negative interaction of Cystus® tea with radiotherapy (chemotherapy). Cystus® reduces radiation-induced mucositis in terms of grade, latency, and incidence. Cystus® tea mouthwash can be applied in addition to intensive oral care and hygiene, along with the application of fluorides within the accepted range (24).

Zedoary Tea

Radical scavenging activity of Zedoary rhizome dried powder (ZRDP) (Curcuma zedoaria Roscoe) has a protective role against lipidemic conditions, hypercholesterolemia, and metabolic syndrome due to the high phenolic contents. The ZRDP contains crude protein (13.5 ± 0.68 %), acid detergent fiber (13.22 ± 0.44%), total dietary fiber (21.86 ± 0.71%), neutral detergent fiber (18.68 ± 0.53%), and mineral contents. The findings demonstrated that ingesting ZHT samples reduced TC, LDL-cholesterol, and TG considerably ($p < 0.05$) in experimental individuals at day 60 compared to the beginning of the trial. After 12 days of pre-treatment, it was discovered that the zedoary extract at a dose of 200 – 400 mg/kg b/w was successful in lowering TC levels (17.1 – 19.65%), indicating antihyperlipidemic efficacy (26).

Conclusions

The author is optimistic that shortly, herbal teas will surely find a higher place and interest in pharmaceutical manufacturing as add-on therapies. Herbal teas are effective and safe when they follow good manufacturing practices (GMP) and quality control standards. Some advantages of herbal teas are suitable pharmaceutical dosage form, patient compliance, easy preparation, standardization, and suitability for all ages. However, some disadvantages of herbal teas are adulteration, possible abuse, and drug-drug interaction. Herbal teas should be under strict quality control due to the prevalence of adulteration of medicinal plants for commercial purposes all over the world.

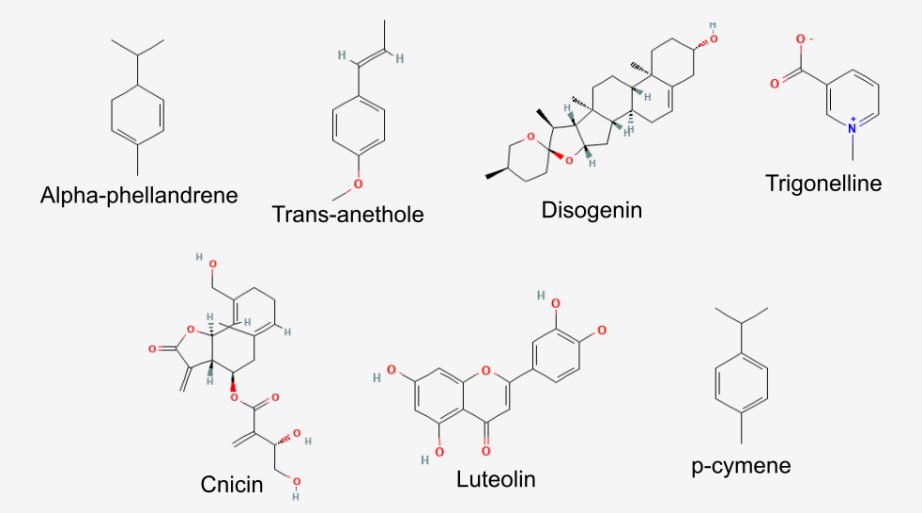

Figure 3. 2D structures of Mother's Milk Herbal components.

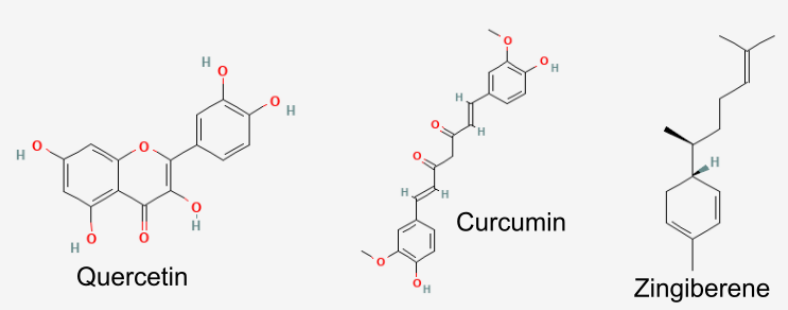

Figure 4. 2D structures of Cystus® and Zedoary Herbal components.

Declarations

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Affiliation: Damanhur Military Hospital.
Contribution: Conceptualization, Data Curation, Formal analysis, Funding acquisition, Investigation, Methodology, Project administration, Resources, Software, Supervision, Validation, Visualization, Writing - Original Draft, Writing - Review & Editing.

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Conflict of Interest

The author declares no conflicting interest.

Data Availability

The unpublished data is available upon request to the corresponding author.

Ethics Statement

Not applicable.

Funding Information

Not applicable.

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