

Opinion/Perspective

# Insights on the Efficacy and Safety of Selected Herbal Teas

Ahmed Abd El-Moniem Amer<sup>1, \*</sup> <sup>1</sup>Damanhur Military Hospital, Damanhur – 22769, Al-Buhayra, Egypt.**Corresponding Author:** [201808455@o6u.edu.eg](mailto:201808455@o6u.edu.eg) (Ahmed Abd El-Moniem Amer)**Received:** 20 July 2023**Revised:** 21 August 2023**Accepted:** 29 August 2023**Published:** 4 September 2023**Editor**

James H. Zothantluanga

**Reviewers**

Lalruatpuii Khiangte

Yasangam Umbon

**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.

© 2023 by the Authors

**Keywords:** Herbal tea; Wang

Nam Yen; Mothers' Milk

Cystusl; Zedoary.

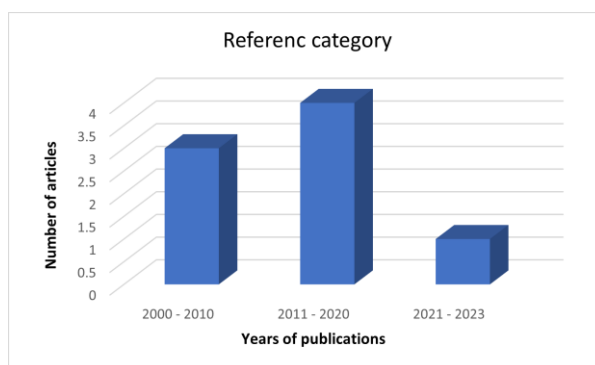
## 1. Introduction

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 will 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).

## 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

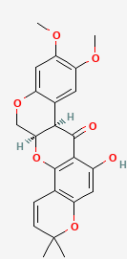
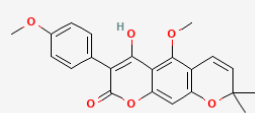
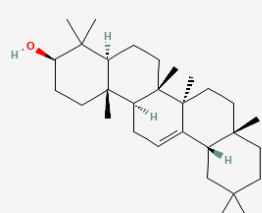
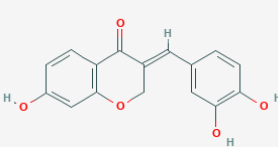
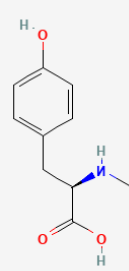
## 3. Herbal Tea formulations

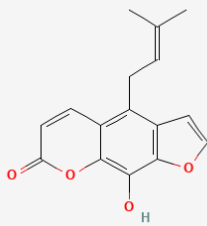
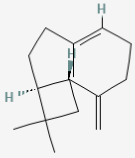
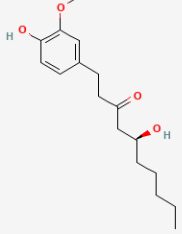
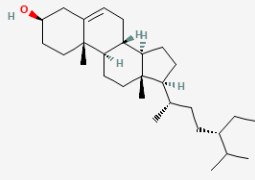
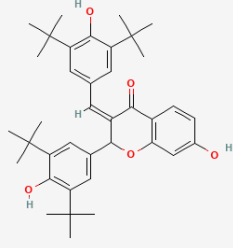
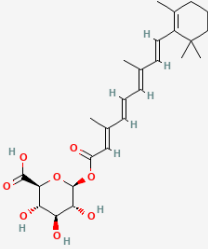
Herbal teas are a widely consumed beverage around the world and are utilized as therapeutic vehicles in many types of traditional medicine. In its most basic form, herbal tea is a blend of herbs produced from various plants' leaves, seeds, and/or roots (3).

### 3.1 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). 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).

**Table 1** Wang Nam Yen Herbal Tea Ingredients.

Medicinal Plant	Phytochemical Constituents	Chemical Structure	Use	Reference
Jewel vine ( <i>Derris scandens</i> ( <i>Roxb.</i> ) <i>Benth</i> )	Flavonoids (toxicarol)		Anti-inflammatory, Anti-microbial, Anticancer, Antioxidant, Immuno- stimulating, Hypotensive.	(5)
	Coumarins (robustic acid)			
Sappan ( <i>Caesalpinia sappan</i> <i>Linn.</i> )	Triterpenoids (beta-amyrin)		Cytotoxic, Antitumor, Antimicrobial, Anti- inflammatory, Antiviral, Hepatoprotective	(6)
	Flavanoids (sappanone A)			
Bale fruit ( <i>Aegle marmelos</i> L. <i>Corr.</i> )	Alkaloids (Angeline)		Antidiabetic, Antioxidant, Anticancerous, Antimicrobial	(7)

	Coumarin (Alloimperatorin)			
	Terpenoids (Caryophyllene)			
Ginger ( <i>Zingiber officinale</i> Roscoe)	Polyphenols (gingerol)		Antioxidant, anti-inflammatory, antimicrobial, anticancer	(8)
Licorice ( <i>Glycyrrhiza glabra</i> Linn.)	Phytosterols (sitosterol)		Antioxidant, Anti-inflammatory, Antitussic, expectorant, Antiulcerative, Antimicrobial, Antiviral, Hepatoprotective, Anticarcinogenic, Antimutagenic, Neuroprotective, Antidepressive	(9)
	Flavonoids (4',7-dihydroxyflavanone)			
	Saponins (glucuronide)			

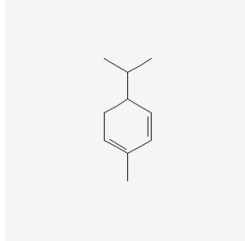
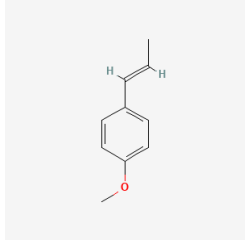
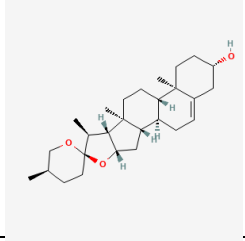
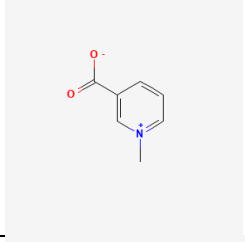
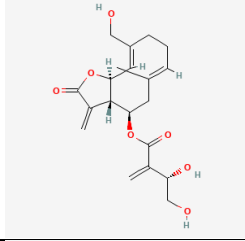
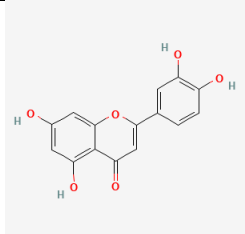
Note: The figures were retrieved from PubChem.

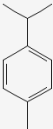
### 3.2 Mother's Milk® Tea (MMT)

MMT is a known, commercially available herbal tea product that was introduced to the U.S. market for the first time in 1978. Mothers usually consume three to five 1-cup servings of MMT daily. MMT contains 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). It is suggested that this commercially available galactagogue tea is safe for infants and mothers (10).

**Table 2** Mother's Milk Herbal Tea Ingredients.

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

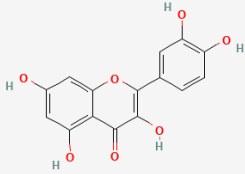
	Volatile oils (p-cymene)			
--	-----------------------------	---	--	--

Note: The figures were retrieved from PubChem.

### 3.3 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, 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).

**Table 3** Cystus® Herbal Tea Ingredients.

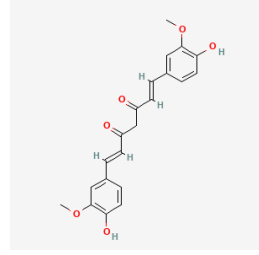
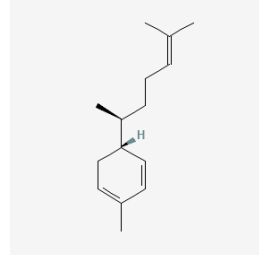
Medicinal Plant	Phytochemical Constituent	Chemical Structure	Use	Reference
<i>Halimium halimifolium</i> Cistaceae	Flavonoid (quercetin)		Antioxidant	(25)

Note: The figure was retrieved from PubChem.

## 4. 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 ( $13.5 \pm 0.68$  %), acid detergent fiber ( $13.22 \pm 0.44$  %), total dietary fiber ( $21.86 \pm 0.71$  %), neutral detergent fiber ( $18.68 \pm 0.53$ %), 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).

**Table 4** Zedoary Herbal Tea Ingredients.

Medicinal Plant	Phytochemical Constituent	Chemical Structure	Use	Reference
<i>Curcuma zedoaria</i> Roscoe	Curcumin		Antimicrobial, Anti-venom, Anti-fertility, Hypotensive	(27)
	Zingiberene			

Note: The figures were retrieved from PubChem.

## 5. 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.

## Funding

Not applicable.

## Acknowledgment

There is a lot I need to thank God for every day. I believe that I am blessed because I have a very loving, understanding, and supportive family. The author expresses his gratitude to Ph. Tarik El-Gendy, who inspired him with hope and supported him during his military service. The author is grateful to Senior Warrant Officer Mohamed Gaber Al-Kholy, who allowed him to work under his wise leadership while performing obligatory military service in the Egyptian armed forces, and he has helped him progress in his pharmaceutical career.

## Conflict of Interest

The author declares any conflict of interest.

## Data Availability

The data would be provided upon request.

## Authors contribution

Conceptualization : Ahmed Abd El-Moniem Amer

Investigation : Ahmed Abd El-Moniem Amer

Supervision : Ahmed Abd El-Moniem Amer  
Administration : Ahmed Abd El-Moniem Amer  
Writing and Editing : Ahmed Abd El-Moniem Amer

## References

1. Poswal FS, Russell G, Mackonochie M, MacLennan E, Adukwu EC, Rolfe V. Herbal Teas, and their Health Benefits: A Scoping Review. *Plant Foods Human Nutrition*. (2019) 74(3):266-276.
2. Piljac-Žegarac J, Šamec D, Piljac A. Herbal teas. *Tea in Health and Disease Prevention*. (2013) 129-40.
3. Ravikumar, C. Review on herbal teas. *Journal of Pharmaceutical Sciences and Research*. (2014) 6(5): 236.
4. Saejueng K, Nopsopon T, Wuttikonsammakit P, Khumbun W, Pongpirul K. Efficacy of Wang Nam Yen herbal tea on human milk production: A randomized controlled trial. *PLoS One*. (2022) 17(1): e0247637.
5. Jitendra R. Patil, Savaliram G. Ghane, Ganesh C. Nikalje. *Bioactives and Pharmacology of Derris scandens (Roxb.) Benth.* 1st Edition. Apple Academic Press. (2023) 10p.
6. Badami S, Moorkoth S, Suresh B. *Caesalpinia sappan* A medicinal and dye-yielding plant. *J.S.S. College of Pharmacy*. (2004) 3(2):75-82.
7. Pathirana, C. K., Madhujith, T., & Eeswara, J. Bael (*Aegle marmelos* L. Corrêa), a medicinal tree with immense economic potentials. *Advances in Agriculture*. (2020) 2020:1-13.
8. Mao QQ, Xu XY, Cao SY, Gan RY, Corke H, Beta T, Li HB. Bioactive Compounds and Bioactivities of Ginger (*Zingiber officinale* Roscoe). *Foods*. (2019) 8(6):185.
9. Pastorino G, Cornara L, Soares S, Rodrigues F, Oliveira MBPP. Liquorice (*Glycyrrhiza glabra*): A phytochemical and pharmacological review. *Phytotherapy Research*. (2018) 32(12):2323-2339.
10. Wagner CL, Boan AD, Marzolf A, Finch CW, Morella K, Guille C, Gardner Z, Marriott BP. The Safety of Mother's Milk® Tea: Results of a Randomized Double-Blind, Controlled Study in Fully Breastfeeding Mothers and Their Infants. *Journal of Human Lactation*. (2019) 35(2):248-260.
11. Ilardi, V., Badalamenti, N., & Bruno, M. Chemical composition of the essential oil from different vegetative parts of *Foeniculum vulgare* subsp. *piperitum* (Ucria) Coutinho (Umbelliferae) growing wild in Sicily. *Natural Product Research*. (2022) 36(14):3587-3597.
12. Shojaii, A., & Abdollahi Fard, M. Review of pharmacological properties and chemical constituents of *Pimpinella anisum*. *International Scholarly Research Notices*. (2012) 2012.
13. Yadav, U. C., & Baquer, N. Z. Pharmacological effects of *Trigonella foenum-graecum* L. in health and disease. *Pharmaceutical Biology*. (2014) 52(2):243-254.
14. Al-Snafi, A. E. The constituents and pharmacology of *Cnicus benedictus*-A review. *The Pharmaceutical and Chemical Journal*. (2016) 3(2), 129-135.
15. Nagi R, Patil DJ, Rakesh N, Jain S, Sahu S. Natural agents in the management of oral mucositis in cancer patients-systematic review. *Journal of Oral Biology and Craniofacial Research*. (2018) 8(3):245-254.
16. Hannig C, Spitzmüller B, Al-Ahmad A, Hannig M. Effects of Cistus-tea on bacterial colonization and enzyme activities of the in situ pellicle. *Journal of Dentistry*. (2008) 36(7):540-5.
17. Kalus U, Grigorov A, Kadecki O, Jansen JP, Kiesewetter H, Radtke H. *Cistus incanus* (CYSTUS052) for treating patients with infection of the upper respiratory tract. A prospective, randomized, placebo-controlled clinical study. *Antiviral Research*. (2009) 84(3):267-71.



18. Rebaya, A., Belghith, S. I., Baghdikian, B., Leddet, V. M., Mabrouki, F., Olivier, E., ... & Ayadi, M. T. Total phenolic, total flavonoid, tannin content, and antioxidant capacity of *Halimium halimifolium* (Cistaceae). *Journal of Applied Pharmaceutical Science* (2015) 5(1):052-057.
19. Attaguile G, Russo A, Campisi A, Savoca F, Acquaviva R, Ragusa N, Vanella A. Antioxidant activity and protective effect on DNA cleavage of extracts from *Cistus incanus* L. and *Cistus monspeliensis* L. *Cell Biology and Toxicology*. (2000) 16(2):83-90.
20. Hannig C, Sorg J, Spitzmüller B, Hannig M, Al-Ahmad A. Polyphenolic beverages reduce initial bacterial adherence to enamel in situ. *Journal of Dentistry*. (2009) 37(7):560-6.
21. Wittpahl G, Kölling-Speer I, Basche S, Herrmann E, Hannig M, Speer K, Hannig C. The Polyphenolic Composition of *Cistus incanus* Herbal Tea and Its Antibacterial and Anti-adherent Activity against *Streptococcus mutans*. *Planta Medica*. (2015) 81(18):1727-35.
22. Kalus U, Kiesewetter H, Radtke H. Effect of CYSTUS052 and green tea on subjective symptoms in patients with infection of the upper respiratory tract. *Phytotherapy Research*. (2010) 24(1):96-100.
23. Ehrhardt C, Hrincius ER, Korte V, Mazur I, Droebner K, Poetter A, Dreschers S, Schmolke M, Planz O, Ludwig S. A polyphenol-rich plant extract, CYSTUS052, exerts anti-influenza virus activity in cell culture without toxic side effects or the tendency to induce viral resistance. *Antiviral Research*. (2007) 76(1):38-47.
24. Ebert N, Kensche A, Löck S, Hadiwikarta WW, Hänsch A, Dörr W, Krause M, Hannig C, Baumann M. Results of a randomized controlled phase III trial: efficacy of polyphenol-containing cystus® tea mouthwash solution for the reduction of mucositis in head and neck cancer patients undergoing external beam radiotherapy. *Strahlentherapie und Onkologie*. (2021) 197(1):63-73.
25. Rebaya, A., Belghith, S. I., Baghdikian, B., Leddet, V. M., Mabrouki, F., Olivier, E., Ayadi, M. T. Total phenolic, total flavonoid, tannin content, and antioxidant capacity of *Halimium halimifolium* (Cistaceae). *Journal of Applied Pharmaceutical Science* (2015) 5(1):052-057.
26. Tariq S, Imran M, Mushtaq Z, Asghar N. Phytopreventive antihypercholesterolemic and antilipidemic perspectives of zedoary (*Curcuma Zedoaria* Roscoe.) herbal tea. *Lipids in Health and Disease*. (2016) 15:39.
27. Gharge S, Hiremath SI, Kagawad P, Jivaje K, Palled MS, Suryawanshi SS. *Curcuma Zedoaria* ROSC (Zingiberaceae): A review on its chemical, pharmacological and biological activities. *Future Journal of Pharmaceutical Sciences*. (2021) 7(1).



This open access article is distributed according to the rules and regulations of the Creative Commons Attribution (CC BY) which is licensed under a [Creative Commons Attribution 4.0 International License](https://creativecommons.org/licenses/by/4.0/).