

Review Article on Tisanes: Recreational use of local plants

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Abstract- *In recent times interest in nutrition and preventive health care with the active constituents from plant materials is growing very fast. This review is about the bundles of antioxidants and nutrients in form of tisanes, which are herbal teas that are not derived from tea plant. In this review the detailed study of herbal infusions with their history, types and effects etc are covered, that can also act as a source of motivation for the health-conscious people. Some of the tisanes being consumed for their energizing properties whereas some are used for specific intentional purposes. Demonstrating the possible precautions, researchers still continue to examine and vouch the health benefits of tisanes.*

Keywords- TCM (traditional Chinese medicine), COX (cyclooxygenase), TNF (tumour necrosis factor), PMN (polymorphonuclear)

I. INTRODUCTION

Although the English term “TEA” is used to denote the infusion made from the leaves or seeds of plant *Camellia sinensis*. The technical term “Tisanes”, also called herbal teas are not actually teas but these are infusion or decoction made from taxa other than *Camellia sinensis* (tea plant), from which true teas are made. The word “tisane” comes through Latin “tisana” and Greek “ptisane” give rise to archaic French and English word “tisane” that refers to any type of herbal tea. Most of these brews are caffeine free, so one can consume 6-8 cups a day without any side effects. These may contain one main ingredient or may be a blend of many ingredients, intended to use for specific purpose like relaxation and rejuvenation etc, as these contains amino acid L-theanine, that helps to reduce stress. Commonly used herbs infused to use to make tisane are ginseng, liquorice, basil, chamomile, cinnamon, mint, ginger, jasmine, neem leaves, citrus peels (lemon and orange) etc. Tisanes are one of the most consumed beverages of the world after water. There are a number of varieties of herbal teas are available in the market each of which is designed for specific benefits. There is wide variation in brewing time of tisanes. They may be as short as two minutes or as long as 15 minutes, and may require as little as a pinch of plant material per cup of water or as much as several tablespoons per cup.

History of tisanes: Tisanes are an irresistible part of meal since thousands of years. In early times these herbal blends were used for healing and their good taste. These are not actually teas but in French language, “tisane” is the term used for medicinal drink that means “tea without tea”. These blends were first popularized in china. Shennong, the divine farmer (2737-2697) was passionate about health, used to steep his own blends and observed his body about the health impacts. One fine day he was enjoying his cup of hot water outdoors, some leaves from a nearby tree blew in his cup. He took the sip and surprisingly the taste of water becomes pleasant. After that accidental infusion he continued experimenting with these drinks. Throughout his life he transformed people’s diet just due to his passion for health. At last he was credited for discovering 365 medicinally useful plants and herbs. Later, Shennong became known as “God of Chinese herbal medicine” because some of his tisanes were also acted as antidotes for many kinds of poisons.

Many tisanes found their origin in Egypt during 1550BC. Till 1070BC herbal tisanes like chamomile, dill and basil became a normal beverage. After the “Boston tea party” in 1773, Americans started to have lots of tisanes. Post this event peppermint and dandelion teas became most popular choices for tisanes. In the 16th century, merchants from Portugal imported tisanes from china to western Europe. By 17th century these drinks became one of the most popular commodities in Europe, specifically in Britain. In Egypt hibiscus tea was very popular by name “karkade”. Chinese term “Liang cha” means cooling tea, was believed to cool down the elevated body temperature.

Old tisanes: In ancient times people use to consume nutritious and plentiful water leftover from cooking grains, they think that water safer to drink than fresh water. With time they started to consume barley water wherever barley was grown. After some time, infusions were prepared either by boiling the fresh leaves of plants in water or by steeping the freshly ground parts of plants or herbs. As time changes similar drinks was made by using dried parts of plants or herbs, just to keep them stored to consume whenever they wish to. The benefits of tisanes were enjoyed with only single ingredient in older times but when the taste was not adaptable people use to add jaggery in the brew. With time the health

passionate people now started to add two or more ingredients or herbs or parts of plants to improve their health benefits as well as their flavour.

Modern tisanes: Today herbal teas are a quintessential part of pantries. The ways to consume is also changed with time. These blends are used in Chinese medicines for specific health purposes and for detoxification etc. Doctors who practice in traditional Chinese medicine (TCM) used all kinds of ingredients. According to the National Centre of Complimentary and Integrative Health, tisane ingredients are primarily plant based but in some cases minerals or animal products can also be used. Parts of plants like flowers, seeds, roots, stem etc are combined with herbs but today the popularity of tisanes is beyond TCM. Today these delicious blends are used to replace the sugary drinks to avoid extra calories and their harmful effects. Modern tisanes can be enjoyed hot or cold as u wish to have and there is also an on the go part of lifestyle as the herbs are now packed like teabags and one have to carry hot water in a flask to enjoy the beneficial drink. If one wants to enjoy ice tea, brew your tisane as desired, allow it to cool and refrigerate and carry wherever you go but ice is not added to ice teas because that can dilute the flavour too. You can tote your own dry powder or teabag and can enjoy at any restaurant as most of the restaurants can cheerfully provide you hot water whenever you order a meal and that's how you can savour your choice anywhere. In older times tisanes are made by boiling but now a day's different blends are brewed at various temperatures, some brew better at lower temperature whereas some do a better job at higher temperature. Different accents are available now like we can add an extra dash of spice with the main component of blend and we can also add the colour rather than flavour. Green cardamom powder or dried rose petal powder can also be used as seasoning sprinkled after sieving the brew.

What tisanes can do to our body: tisanes can give positive as well as negative effects to our body. however, negative ones are quite unusual and rare that may be due to hypersensitive reaction.

Some general beneficial effects of tisanes are

- More calm and relaxed state of mind.
 - Support healthy heart
 - Relief with stomach and digestive problem
 - Providing cleansing properties to our body
 - Improved energy and wellness level
 - Nourishment of nervous system
 - Gives strength of immune system
 - Gives antioxidants to body in ample amount.
 - Invigorating effects to the body
- Bronchial muscles are relaxed and helpful in avoiding cold. Elder tree herb is best for fighting against cold, having properties to clear nasal passage and stops heavy cough.it also reduces symptoms of asthma.
 - Stimulate the functioning of internal organs
 - Promoting good night's sleep
 - Caffeine free and taste is great.
 - Great for healthy skin
 - Promoting the breakdown of fats cells and hence supports weight and inch loss and also reduces symptoms of blotting. Dandelion, chamomile,
 - cinnamon, and ginger teas are best for digestion.
 - Antioxidants founds in herbal teas can slow down ageing process
 - Instant of taking antihypertensive pills one can try herbal teas to lower blood pressure. Hibiscus tree is best for hypertension.
 - Fragrance of these bundle of antioxidants made them easy to use for their therapeutic effects.

Categories of tisanes: Tisanes are usually categorized by what part of the plant they come from. Here are some examples of each of the major categories of tisanes:

- Leaf tisanes: lemon balm (biological source melissa officinalis and belongs to family lamiaceae), mint (biological source mentha piperta,belongs to family lamiaceae), lemongrass (biological source cymbopagon atratus belongs to family poaceae) and French verbena (biological source verbena officinalis and family verbenaceae).
- Flower tisanes: rose (biological source rosa rubiginosa belongs to family rosaceae), chamomile (biological source metricaria chamomilla L and belongs to family Asteraceae), hibiscus (biological hibiscus rosa sinesis belongs to family malvaceae) and lavender (biological source lavendulan spica belongs to family lamiaceae).
- Bark tisanes: slippery elm (biological source ulmus rubra belongs to family ulmaceae), cinnamon (dried inner bark of trees of cinnamomum belongs to family lauriaceae), and black cherry bark (biological source prunus serotima belongs to family rosaceae).
- Root tisanes: ginger (biological source zingiber officinale belongs to family zingiberaceae), echinacea (biological source E.purpurea belongs to family asteraceae), and chicory (biological source cichorium intybus belongs to family Asteraceae).
- Fruit/berry tisane: raspberry (biological source rubus idaeobatus belongs to family rosaceae, blueberry (biological source vaccinium corymbosum belongs to family Ericaceae), peach (biological source prunus

persica belongs to family rosaceae), and apple (biological source malus pumila belongs to family rosaceae).

- Seed/spice tisanes: caraway (biological source Persian cumin belongs to family apiaceae), fennel (biological source foeniculam vulgare belongs to family apiaceae) and cardamom (biological source elettaria cardamomum belongs to family zingiberaceae).



Types of tisanes: there are as many as hundreds of tisanes but some of the most commonly used among them are:

- Chamomile tisane: This is obtained from plant matricaria chamomilla L, belongs to family Asteraceae. It is consumed for its calming effects, used as a sleep aid and to relieve anxiety. Calming effects are due to presence of flavonoid apigenin, that binds to benzodiazepine receptors in the brain and hence exhibit benzodiazepine like hypnotic activity. Drinking chamomile tea twice a day can help treating insomnia, reducing the time to fall asleep and sleeping time. In addition to its calming effects, chamomile tea is also believed to treat inflammation due to presence of chamazulene, alpha bisabolol, that acts on inhibition of PGE2 production due to COX -2 suppression.
- Rooibos tisane: Rooibos itself means “red bush” obtained from aspalathus linearis, belongs to family fabaceae. This is a cluster of health benefits. It is great for skin as it relieves acne, eczema and also hides the signs of aging. Presence of calcium and fluoride make it great for bone health and hence reduces the chances of developing arthritis.
- Peppermint tisane: This is obtained from plant mentha piperita, hybrid between watermint (mentha aquatica) and spearmint (mentha spicata). It is a booster of digestive system. It helps in relieving bloating, abdominal gas and muscle spasms because the effects of oil present in peppermint resembles with the effect of calcium antagonist and hence it relaxes GI smooth muscles by reducing calcium reflux.
- Ginger tea: This is obtained from plant “zingiber officinale”, belongs to family zingiberaceae. It is also best for digestive health. It helps relieve nausea and vomiting like peppermint. Drinking ginger tea is the best natural methods for treating inflammation, due to the gingerol found in the root. Ginger tea is also useful for reducing menstrual discomfort, weight loss, and enhances brain function.
- Rosehip tisane: Made from rose plants, rosa rubiginosa from family roseceae. Rosehip is rich in vitamin C, carotenoids, glycosides, flavonoids and terpenes etc. which is great for skin and tissue health, and the immune system. It also has antioxidants and anti-inflammatory properties due to presence of phenolic compounds.
- Cinnamon tisane: It is a spice from the genus Cinnamomum, belongs to family lauraceae that grow in Sri Lanka and South India. Cinnamon’s smell and flavour is due to presence of essential oil, cinnamaldehyde. It calms an upset stomach and improve digestive health and also a great culinary spice. It is versatile and can be put in either sweet or savoury dishes, or enjoyed in tea form. Its main hypolipidemic action is due to inhibition of hepatic HMG co-A reductase. Oxidative stress is reduced through inhibition of 5-lipoxygenase enzyme that reduces lipid peroxidation.
- Lemongrass tisane: This is obtained from plant Cymbopogon citratus, belongs to family poaceae. This can be grown in yard or pots. This helps the body rid of cholesterol, fat, uric acid and toxins. It also helps lower blood pressure, relieves fluid retention, also great for skin and hair. The potential of hypolipidemic and hypoglycaemic activity by increasing insulin synthesis and peripheral glucose utilization. Its oil can also be used as pesticide and preservative too.
- Dandelion tisane: this is derived from the yellow dandelion flower from the genus taraxacum, belongs to family Asteraceae. It is easy to make by boiling the flower petals to extract their oils. The root of the dandelion can be used to make coffee as its taste is similar to coffee, as it contains caffeic acid, but less bitter. This helps with weight loss, digestion, promote strong bones and protect against anaemia. The dandelion constituents are luteolin and luteolin-7-glucoside that suppress prostaglandin E2 and COX-2. Dandelion tisane (aqueous extract) also inhibit the production of inflammatory cytokines, interleukin-6 (IL-6) and tumour necrosis factor alpha (TNF- α).
- Eucalyptus tisane: This is obtained from a large and fast-growing tree “eucalyptus globulus”, belongs to family myrtaceae. Its leaves have a strong fragrance and oil that can be extracted for various medicinal uses. To make a tea from eucalyptus, the leaves are simply dried and steeped. It stimulates the immune system and improves respiratory circulation. Also fight against respiratory infections and also soothes stiffness and swelling

associated with arthritis and rheumatism due to presence of eucalyptol (1,8-cineol) that blocks the pain mediating arachidonic acid and its metabolites. It decreases emotional stress, and mitigate mental fatigue. It also inhibits COX pathways responsible for pain and production of some cytokines like TNF- α , IL-1 β , leukotriene B4 and thromboxane B2.

- Fennel tisane: Fennel is dried ripen fruits of *foeniculum vulgare*, belongs to family *apiaceae*. Fennel tea is used for variety of purposes like dieting agent, a muscle enhancer, and to treat kidney stones. Leaves and seeds of fennel are steeped to make a tea that is very helpful for nursing mothers to increase their milk supply. this is also helpful in reducing the effects of food poisoning and reducing acid reflux.
- Thyme tea: Thyme, botanically known as *Thymus vulgaris*, is a garden herb, used medicinally and culinary reasons. Thymol, thyme's active ingredient, is a powerful antioxidant that is great for reducing headache, sore throat and for gastrointestinal discomfort.
- Rosemary tisane: Rosemary, obtained from *rosmarinus officinalis* is a woody perennial herb with needle like leaves and white, blue, pink or purple flowers that belongs to family *lamiaceae*. This evergreen herb is used as spice usually but its aqueous extract is naturally a bundle of antioxidants. European union has approved rosemary extract (E392) as a safe and natural antioxidant to improve the shelf life of perishable foods. Main essential oils of rosemary extract are 1,8-cineole, α -pinene, camphene, α -terpineol etc. that are responsible for antioxidant properties. The phenolic compounds like flavonoids (homoplantagin, cirismartin, genkwanin, nepetrin and hesperidin etc.) and phenolic acid derivatives like rosmarinic acid are present in rosemary extract. Diterpenes, in rosemary are responsible for lipid peroxidation and protection of cells from oxidative death.



- Jasmine tisane: jasmine tea is made by steeping the flowers in boiled water that are obtained from *jasminum officinalis* L. and belongs to family *Oleaceae*, is more

commonly served in china to welcome guests. Most noticeable antioxidants in jasmine tea are catechins. Its aqueous extract is having cancer protective properties due to presence of polyphenols like EGCG, that defence against free radicals and other harmful and carcinogenic invaders in the body. The odour of jasmine leads to parasympathetic response and the body releases the chemicals that relax or improve the mood naturally. Jasmine tea also has anti-inflammatory properties that helps in reducing chronic discomfort and pain associated with joint pain and arthritis by inhibiting unwanted cellular oxygenation.

- Ginseng tisane: This tisane is obtained from aqueous extract of root of plant of genus *panax* like *P.ginseng* or *P.notoginseng*, belongs to family *araliaceae*. Saponins are found in abundant amount in ginseng, known as ginsenosides. Approximately 40 are there in ginseng rhizome but apart from ginsenosides, phytosterols are also present, that have steroidal skeleton and have the capability to lower the cholesterol level. Stigmasterol and β -sitosterol are also found. Among flavonoids kempiferol is the representative one from ginseng that is responsible for its antioxidant activity. Aqueous extract of ginseng also has panaxynol and ginsenoside A, showing cytotoxic activity at higher concentration. Alkaloids like fumarine and girinimbic are non-saponin constituents present in ginseng tisane.
- Ginger brew: Rhizome of ginger is used for loads of health benefits. Botanically, ginger is obtained from roots and rhizomes of plant, *Zingiber officinale*, belongs to family *zingiberaceae*. This can be used in varieties of ways like as a marinade, to make tea, and for juice, and also consume it raw or pickled. It can reduce nausea and vomiting by increasing GI motility and transport via 6-gingerol. Aqueous extract of ginger can inhibit platelet aggregation via ADP, adrenaline, epinephrine and arachidonic acid pathway. Ginger also have anti-inflammatory activity due to inhibition of COX and lipoxygenase pathways due to presence of 6-gingerol, 10-gingerdione and 10-dyhydrogingerdione. Its oleo resin can reduce hypercholesterolemia by disrupting cholesterol absorption from GIT.
- Hibiscus tea: Hibiscus tea is made from dried flowers obtained from *hibiscus sabdariffa*, belongs to family *malvaceae*. can be consumed chilled, and sometimes used in conjunction with other herbs to create seasonal beverages. Its aqueous extract has a fair amount of plant acids like citric acid, malic acid, tartaric acid and alloxycitric acid lactone (hibiscus acid). This is rich in vitamin C and hence is useful for cold and flu infections like sore throat and cough etc. by naturally boosting the immunity. Antioxidants present in hibiscus has a

capability of slowing down the aging process of cells. Flavonoids, anthocyanins and anthocyanidins found in hibiscus have antidepressant properties. Crude hydroalcoholic extract in H. calyces have shown the enzyme inhibiting activity towards angiotensinI, that is due to anthocyanins present in hibiscus.

- Oregano tea: oregano is more commonly known for Italian seasoning but no one is having an idea about their purple flowers obtained from plant *origanum vulgare*, belongs to family *lamiaceae*. Essential oil in oregano is high in carvacrol and thymol, both of these can prevent cell damage due to free radicals. It can block the growth of *escherichia coli* and *pseudomonas aeruginosa*. Carvacrol, one of the main components of oregano can suppress the growth and spread of colon cancer cells. Both, carvacrol and thymol have antiviral properties and can inactivate norovirus that is responsible for causing diarrhoea, nausea and stomach pain.
- Echinacea tisane: this one is a flower-based tea that belongs to daisy family (*Asteraceae*), obtained from plant *E.angustifolia*. Aqueous extract of flower possesses immunostimulant activity by phagocytosis stimulation and activation of neutrophils, macrophages, polymorphonuclear (PMN) leukocytes and NK cells. This also gives anti-inflammatory activity due to presence of ketoalkenes and caffeic acid derivatives. Alkamides present in echinacea are effective on cannabinoid receptors type2 (CB2) and this mechanism is responsible for immunomodulatory properties. Echinacea also inhibit both COX-1 and COX-2 and 5-lipoxygenase, causes inhibition of NK cells and thus gives anti-inflammatory activity.
- Passion flower steep: Some say this is wildflower obtained from *passiflora incarnate*, belongs to family *passifloraceae*. Passion flower is best known for its sedative action through modulation of GABA system including affinity for GABA(A) and GABA(B) receptors and influence on GABA uptake. Apigenin, one of the main constituents of passion flower binds to benzodiazepines receptors and thus give anxiolytic effects without impairing memory or motor skills. Other several active constituents include luteolin, quercetin, kaempferol and vitexin. Harman alkaloids in passion flower include harmaline, harmalol and harmin and thus also gives analgesic and antispasmodic effects. Maltol present in passion extract can depress the CNS, reduce spontaneous motor activity and prolong barbiturate induced sleep time.
- All these tisanes are having one main ingredient but we can also use a blend of ingredients according to our customized needs.
- Premonition with herbal teas: Most herbal teas reaches in market in attractive and nifty packaging in form of tea

bags that are disposable too and people generally uses the herbal formulation but no one thinks about the conventional method that is used for the manufacturing of tea bags, that utilizes the bleaching agent, chlorine dioxide, which bring about the by-products like dioxin, that can cause birth defects because it can enters the placenta of pregnant women as well as can enter the breast milk and thus passed along to the child. Dioxin can also cause cancer and other debilitating diseases. That's why being mindful about the use of herbal teas is very crucial. So, if possible, we should go for loose herbs and parts of plants and should opt for stainless steel tea infusers rather than bleached tea bags. Never use an aluminium pot to prepare these recreational teas because aluminium is a reactive metal, so it can react with the herb and, depending on the plant type, it may produce a very toxic beverage as aluminium can dissolve during brewing of tisane that goes into bloodstream and accumulates in different organs, thus shows the negative effects.

REFERENCES

- [1] Herb tea. [Internet]. [cited 2016 April 22] Available from: www.ictionary.com/browse/herbal-tea
- [2] Lindsey Goodwin, Tisane /Herbal Infusion Basics. [cited 2016 March 10] Available from: <http://coffeetea.about.com/od/teaandtisanebasics/a/TisaneBasics.html>
- [3] Dan Bolton. Researchers Validate Tisane Health Benefits, World Tea News. [updated 2011; cited 2016 March 20] Available from: <http://worldteanews.com/news/researchersvalidate-tisane-health-benefits>
- [4] Tisanes. [cited 2016 March 8]. Available FROM <http://www.oilandplants.com/tisanes.html>.
- [5] FAO. Food and Energy- Methods of analysis and conversion factors. Report of a Technical Workshop, Rome. 2002;Chapter 3.
- [6] AOAC Association of Official Agriculture Chemists. Washington Dc, USA. 1984.
- [7] Victor C. Myers and Hilda M. Croll. The Determination of Carbohydrates in Vegetable Foods. *Journal of Biol.Chem.* 1921;46:537-551.
- [8] International Standard- ISO 14502-1, Ed.1. 2005.
- [9] A. Kumar, A.G.C. Nair, A.V.R. Reddy, A.N. Garg 2005. Analysis of essential elements in Pragyapeya—A herbal drink and its constituents by neutron activation. *Journal of Pharmaceutical and Biomedical Analysis.* 37 (4): 631–828.
- [10] Lindsay Goodwin, n.da. What are Herbal Teas / Tisanes / Herbal Infusions?

- [11] Aoshima, H; Hirata, S; Ayabe, S., 2007. Anti-oxidative and antihydrogen peroxide activities of various herbal teas. *Food Chemistry* 103 (2): 617–622.
- [12] Anonymous, 2008. Herbal tea benefits.
- [13] Anonymous, 2011b. 10 Most Popular Herbal Tea Types and Their Benefits
- [14] Anonymous, 2011a. Introduction to Herbal Teas.