WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 9, Issue 12, 638-646. Review Article ISSN 2277– 7105

THERAPEUTIC POTENTIAL AND BIOLOGICAL ACTIVITIES OF ANOSIA TEA AND ITS INGREDIENTS: AN OVERVIEW

[*1]Najmuddin Ahmad Siddiqui, [2]Jalil Ahmed and [3]Ansari Izhar Ahmad

[1]Research Scientist, R & D Department, Hamdard laboratories, Ghaziabad-201003.
[2]Professor, Department of Kulliyat, Z.V.M. Unani Medical College and Hospital, Pune
[3]Lecturer, (EMS Department), Alghad International Applied Medical Science College, Nejran, Saudi Arabia.

Article Received on
11 August 2020,
Revised on 01 Sept. 2020,
Accepted on 22 Sept. 2020,
DOI: 10.20959/wjpr202012-18838

***Corresponding Author**
Najmuddin Ahmad Siddiqui
Research Scientist, R&D Department, Hamdard laboratories, Ghaziabad-201003.

ABSTRACT

Today, the whole world wishes to improve the quality of life due to this COVID-19 Pandemic. It is causing widespread concern, fear and stress, and stigma in the individuals and society. After the outbreak of this pandemic a lot of Natural products launched in the market as immunity booster because the whole world expecting from these searchers of Naturopathy to find out some safe and low-cost health nutrition from the natural sources for boosting the immunity. The purpose of the survey and review of products is to find out the best herbal product and review scientifically on the basis of their formulations and pharmacological and biological actions of its ingredients. Procured moreover fifty products from the market like, Herbal Kadha, Joshanda, Herbal Tea, Herbal decoctions etc. After going through all the products formulations and their ingredients it has been revealed that the ingredients of Anosia Tea found the best product on the basis of their potential ingredients. The ingredients used in its formulation have been proven and reported as antioxidant, anti-inflammatory, digestive analgesic, antipyretic and contains substantial amounts of glutamic acid, mineral matter, sterols, vitamins, tocopherols, fibers, amino acids, triacylglycerol, fatty acid, carbohydrate, and antioxidant compounds (phenols, flavonoids, etc.) which have been supposed to be responsible for most of its health benefits such as hypoglycemic, gastro protective, Immuno-modulator Cholesterol-and Lipid-lowering Effects, dyspepsia (heartburn, acid indigestion, cancer preventive and including cardiovascular and bowel diseases, cancer, diabetes, rheumatoid arthritis and neurodegenerative disorders.

KEYWORDS: Anosia Tea; Health Protective; Immunomodulator; Antioxidant, Anti-inflammatory.

INTRODUCTION

Medicinal plants have been used for remedial purpose from centuries in different indigenous systems of medicine as well as folk medicines. Moreover, medicinal plants are also used in the preparation of herbal tea, herbal decoctions and Kadha etc., as they are considered to be safe as compared to modern allopathic medicines. As the corona virus (COVID-19) pandemic sweeps across the world, it is causing widespread concern, fear and stress, all of which are natural and normal reactions to the changing and uncertain situation that everyone finds them.[1] Today, the whole world wishes to improve the quality of life due to this COVID-19 Pandemic. In this pandemic there are lot of anxiety, stress, fear, depression and stigma in the individual and society. In view of the present situation pandemic lot of Natural products launched in the market as an immunity booster because the whole world expecting from the researchers of Naturopathy to find out some safe and low-cost health nutrition from the natural sources for boosting immunity. The purpose of the survey and review of products is to find out the best herbal product and review scientifically on the basis of their formulations and pharmacological and biological actions of its ingredients. Procured more over fifty products from market e.g. Herbal Kadha, Joshanda, Herbal Tea, Herbal decoctions etc. After going through all the products formulations and their ingredients it has been revealed that the ingredients of Anosia Tea found the best product on the basis of their potential ingredients.

The ingredients used in its formulations (Table-1) have been proven and reported as an antioxidant, anti-inflammatory, digestive analgesic, antipyretic and contains substantial amounts of glutamic acid, mineral matter, sterols, vitamins, tocopherols, fibers, amino acids, triacylglycerol, fatty acid, carbohydrate and antioxidant compounds (phenols, flavonoids, etc.) which have been supposed to be responsible for most of its health benefits such as hypoglycemic, gastro protective, Immuno-modulator, Cholesterol-and Lipid-lowering effects, dyspepsia (heartburn, acid indigestion, cancer preventive and including cardiovascular and bowel diseases, cancer, diabetes, rheumatoid arthritis and neurodegenerative disorders. (Table-2)

Table 1: Ingredients of Anosia Tea.

S.No	Name of the ingredients
1.	*Cinnamomum verum*(Cinnamon)
2.	*Zingiber officinale* (Zinger)
3.	*Piper nigrum* (Black pepper)
4.	*Syzygium aromaticum* (Clove)
5.	*Mentha pipereta* (Peppermint)
6.	*Glycyrrhiza glabra* (Licorice)
7.	*Ziziphus jujube* (Jujube berries)

METHODOLOGY

Over 50 products of Herbal Tea, decoctions, Herbal Kadha and Jhoshanda were procured from the open market. Anosia Tea was one of them pulled out from the same market. The formulation of Anosia Tea is found best among all the products. Therefore, ingredient of this formulation has been reviewed thoroughly by the authors. The searches on the ingredients of Anosia Tea were performed using various databases, including PubMed, Science Direct Scopus for their pharmacological actions and health benefits.

Table 2: Pharmacological and Biological activities of ingredients of Anosia Tea.

S.No.	Name of the ingredients	Pharmacological and Biological activities
1.	*Cinnamomum verum*(Cinnamon)	Neuroprotective,[2-3] Anti-microbial,[4-5] Antifungal,[6] Antioxidant,[7-8] Anti-diabetic,[9-10] Anti-inflammatory.[11-12]
2.	*Zingiber officinale* (Zinger)	Anti-emetic (Nausea and vomiting),[13-14] Anti-oxidant,[15] Anti-inflammatory,[13] Anti-cancer,[16-18] Anti-pyretic & analgesic[19] enhance immune function[60]
3.	*Piper nigrum* (Black pepper)	Anti-oxidant, Anti-microbial, anti-carcinogenic, Anti-inflammatory potential and Gastro-protective modules[20-22]
4.	*Syzygium aromaticum* (Clove)	Anti-oxidant,[23-25] Anti-microbial,[26-28] anti-viral,[29-32] Anti-nociceptive.[33-38]
5.	*Mentha pipereta* (Peppermint)	Anti-bacterial and Anti-oxidant,[39] Anti-fungal,[40] Anti-microbial.[41]
6.	*Glycyrrhiza glabra* (Licorice)	Anti-Inflammatory and Anti allergic,[42-43] Immuno-stimulatory and Anti-viral,[44-45] Anti-bacterial Activity,[47-48] Anti-cancer[49-51] and Memory-enhancing.[52]
7.	*Ziziphus jujube* (Jujube berries)	Anticancer,[53] Anti-inflammatory & anti- obesity,[54] Anti-helminthic,[55] Hepato-protective & gastrointestinal protective[56-57] and Anti-oxidant.[58-59]

RESULT AND DISCUSSIONS

The ingredients of Anosia Tea has been extensively studied for its biological activities and therapeutic potential and shown to possess a wide spectrum of activities viz. as Anti-oxidant,[23-25] Anti-microbial,[26-28] Anti-viral,[29-32] Anti-nociceptive,[33-38] Antibacterial and

Anti-oxidant,[39] Anti-fungal,[40] Antimicrobial,[41] Anti-inflammatory and Anti-allergic,[42-43] Immuno-stimulatory and Anti-viral,[44-45] Anti-bacterial Activity,[47-48] Anticancer,[49-51] Memory-Enhancing,[52] Anticancer,[53] Anti-inflammatory & anti-obesity,[54] Anti-helminthic,[55] Hepato-protective and gastrointestinal protective,[56-57] and Antioxidant.[58-59] The extensive researches using modern scientific techniques were carried out by various researchers on the individual ingredients of this formulation. A number of pharmacological actions of ingredients have been investigated in the past few decades and scientifically proved all the above therapeutic potentials. Several reports have dealt with the numerous properties of ingredients, phenolic compounds, flavonoids, and isolated components. Each of these properties plays a key role in the progression of human health. The anti-oxidant and anti-microbial activities may occur through direct action on oxidants or microbes.

CONCLUSION

Based on evidence from this systematic review, Anosia could be considered a harmless and possibly effective alternative option of tea in this COVID-19 pandemic and it may be taken in daily life.

REFERENCES

1. https://www.euro.who.int/en/health-topics/health-emergencies/coronavirus-covid-19/news/news/2020/3/mental-health-and-psychological-resilience-during-the-covid
2. Khasnavis S, Pahan K. Sodium benzoate, a metabolite of cinnamon and a food additive, upregulates neuroprotective Parkinson disease protein dj-1 in astrocytes and neurons. *Journal of Neuroimmune Pharmacology*, 2012; 7(2): 424–435.
3. Panickar KS, Polansky MM, Graves DJ, Urban JF, Anderson RA. A procyanidin type A trimer from cinnamon extract attenuates glial cell swelling and the reduction in glutamate uptake following ischemia-like injury *in vitro*. *Neuroscience*, 2012; 202: 87–98.
4. Chang S-T, Chen P-F, Chang S-C. Antibacterial activity of leaf essential oils and their constituents from *Cinnamomum osmophloeum*. *Journal of Ethnopharmacology*, 2001; 77(1): 123–127.
5. Gende LB, Floris I, Fritz R, Eguaras MJ. Antimicrobial activity of cinnamon (*Cinnamomum zeylanicum*) essential oil and its main components against paenibacillus larvae from argentine. *Bulletin of Insectology*, 2008; 61(1): 1–4.

6. Wang S-Y, Chen P-F, Chang S-T. Antifungal activities of essential oils and their constituents from indigenous cinnamon (*Cinnamomum osmophloeum*) leaves against wood decay fungi. *Bioresource Technology*, 2005; 96(7): 813–818.
7. Mancini-Filho J, van-Koiij A, Mancini DAP, Cozzolino FF, Torres RP. Antioxidant activity of cinnamon (*Cinnamomum zeylanicum*, breyne) extracts. *Bollettino Chimico Farmaceutico*, 1998; 137(11): 443–447.
8. Kim N, Sung H, Kim W. Effect of solvents and some extraction conditions on antioxidant activity in cinnamon extracts. *Korean Journal of Food Science and Technology*, 1993; 25(3): 204–209.
9. Kim SH, Hyun SH, Choung SY. Anti-diabetic effect of cinnamon extract on blood glucose in db/db mice. *Journal of Ethnopharmacology*, 2006; 104(1-2): 119–123.
10. Onderoglu S, Sozer S, Erbil KM, Ortac R, Lermioglu F. The evaluation of long-term effects of cinnamon bark and olive leaf on toxicity induced by streptozotocin administration to rats. *Journal of Pharmacy and Pharmacology*, 1999; 51(11): 1305–1312.
11. Chao LK, Hua K-F, Hsu H-Y, Cheng S-S, Liu J-Y, Chang S-T. Study on the Antiinflammatory activity of essential oil from leaves of *Cinnamomum osmophloeum* . *Journal of Agricultural and Food Chemistry*, 2005; 53(18): 7274–7278.
12. Tung Y-T, Yen P-L, Lin C-Y, Chang S-T. Anti-inflammatory activities of essential oils and their constituents from different provenances of indigenous cinnamon (*Cinnamomum osmophloeum*) leaves. *Pharmaceutical Biology*, 2010; 48(10): 1130–1136.
13. Ensiyeh Jenabi, Sakineh MA C. Comparing ginger and vitamin B6 for the treatment of nausea and vomiting in pregnancy: a randomized controlled trial. *Midwifery*, 2007; 25: 649-653.
14. Bryer Eva, CNM, MSN. A literatur review of the effectiveness of ginger in alleviating mild-to-moerate nausea and vomiting of pregnancy. *Midwifery*, 2005; 50: 1-3.
15. Ghayur MN, Gilani AH, Afridi MB, Houghton PJ. Cardiovascular effects of ginger aqueous extract and its phenolic constituents are mediated through multiple pathways. *Vascular Pharmacol*, 2005; 43: 234-241.
16. Park KK, Chum KS, Lee SS, Surh YJ. Inhibitory effects of-gingerol, a major pungent principle of ginger, on phorbol ester-induced inflammation, epidermal ornithine decarboxylase activity and skin tumor promotion in ICR mice. *Cancer Lett*, 1998; 129: 139-144.

17. Surh YJ. Anti-tumor promoting potential of selected spiceingredients with antioxidative and anti-inflammatory activities: a short review. *Food Chem Toxicol*, 2002; 40: 1091-1097.
18. Katiyar SK, Agarwal R, Mukhtar H. Inhibition of tumor promotion in SENCAR mouse skin by ethanol extract of Zingiber officinale rhizome. *Cance Research*, 1996; 56: 1023-1030.
19. Yoo Jin Chai, Ji Sun Lee, Ae Son Om, In Hye Kim, Jung Sook Ko and Kang Gin Cho The Safety and Efficacy of Ginger for the Treatment of Disease *Cancer Prev Res*, 2011; (16): 288-293.
20. Thi ThoBui Chun HuaPiao EunjinHyeon YanjingFan ThiVan Nguyen Sun YoungJung Dae WoonChoi So-youngLee Hee SoonShin Chang HoSong Ok Hee Chai The protective role of *Piper nigrum* fruit extract in an ovalbumin-induced allergic rhinitis by targeting of NFκBp65 and STAT3 signalings Biomedicine & Pharmacotherapy**,** January 2019; 109**:** 1915-1923.
21. M.S. Butt, I. Pasha, M.T. Sultan, M.A. Randhawa, F. Saeed, W. Ahmed, Black pepper and health claims: a comprehensive treatise, Crit. Rev. Food Sci. Nutr, 2013; 53(9): 875–886.
22. M. Meghwal, T.K. Goswami, Piper nigrum and piperine: an update, Phytother. Res, 2013; 27(8): 1121–1130.
23. Bamdad F, Kadivar M, Keramat J. Evaluation of phenolic content and antioxidant activity of Iranian caraway in comparison with clove and BHT using model systems and vegetable oil. Int J, Gülçin I, Elmastaş M, Aboul-Enein HY. Antioxidant activity of clove oil-A powerful antioxidant source. Arab J Chem, 2012; 5(4): 489-499.
24. Dudonné S, Vitrac X, Coutière P, Woillez M, Mérillon JM. Comparative study of antioxidant properties and total phenolic content of 30 plant extracts of industrial interest using DPPH, ABTS, FRAP, SOD, and ORAC assays. J Agric Food Chem, 2009; 57(5): 1768-1774.
25. Gülçina İ, Şatb İG, Beydemira Ş, Elmastaşc M, Küfrevioglu Öİ. Comparison of antioxidant activity of clove (Eugenia caryophylata Thunb) buds and lavender (Lavandula stoechas L.). *Food Chem*, 2004; 8(3): 393-400.
26. Sofia PK, Prasad R, Vijay VK, Srivastava AK. Evaluation of antibacterial activity of Indian spices against common foodborne pathogens. *Int J Food Sci Technol*, 2007; 42(8): 910-915.

27. Dorman HJ, Deans SG. Antimicrobial agents from plants: antibacterial activity of plant volatile oils. *J Appl Microbiol*, 2000; 88(2): 308-316.
28. Pérez-Conesa D, McLandsborough L, Weiss J. Inhibition and inactivation of Listeria monocytogenes and Escherichia coli O157:H7 colony biofilms by micellar-encapsulated eugenol and carvacrol. *J Food Prot*, 2006; 69(12): 2947-2954.
29. Kurokawa M, Hozumi T, Basnet P, Nakano M, Kadota S, Namba T, et al. Purification and characterization of eugeniin as an antiherpesvirus compound from Geum japonicum and Syzygium aromaticum. *J Pharmacol Exp Ther*, 1998; 284(2): 728-735.
30. Kurokawa M, Nagasaka K, Hirabayashi T, Uyama S, Sato H, Kageyama T, et al. Efficacy of traditional herbal medicines in combination with acyclovir against herpes simplex virus type 1 infection in vitro and in vivo. *Antiviral Res*, 1995; 27(1-2): 19-37.
31. Aggarwal BB, Shishodia S. Molecular targets of dietary agents for prevention and therapy of cancer. *Biochem Pharmachol*, 2006; 71(10): 1397-1421.
32. Slamenová D, Horváthová E, Wsólová L, Sramková M, Navarová J. Investigation of anti-oxidative, cytotoxic, DNA-damaging and DNA-protective effects of plant volatiles eugenol and borneol in human-derived HepG2, Caco-2 and VH10 cell lines. *Mutat Res*, 2009; 677(1-2): 46-52.
33. Ghosh R, Nadiminty N, Fitzpatrick JE, Alworth WL, Slaga TJ, Kumar AP. Eugenol causes melanoma growth suppression through inhibition of E2F1 transcriptional activity. *J Biol Chem*, 2005; 280(7): 5812-5819.
34. Healthcare T. PDR for herbal medicines. 4th ed. Montvale: *Thomson Healthcare*; 2004.
35. Li HY, Lee BK, Kim JS, Jung SJ, Oh SB. Eugenol inhibits ATPinduced P2X currents in trigeminal ganglion neurons. *Korean J Physiol Pharmacol*, 2008; 12(6): 315-321.
36. Ohkubo T, Shibata M. The selective capsaicin antagonist capsazepine abolishes the antinociceptive action of eugenol and guaiacol. *J Dent Res*, 1997; 76(4): 848-851.
37. Daniel AN, Sartoretto SM, Schimidt G, Caparroz-Assef SM, Bersani-Amado CA, Cuman RK. Anti-inflamatory and antinociceptive activities of eugenol essential oil in experimental animal models. *Rev Bras Farmacogn*, 2009; 19(1B): 212-217.
38. Kurokawa M, Hozumi T, Basnet P, Nakano M, Kadota S, Namba T, et al. Purification and characterization of eugeniin as an antiherpesvirus compound from Geum japonicum and Syzygium aromaticum. *J Pharmacol Exp Ther*, 1998; 284(2): 728-735.
39. Rajinder Singh, Muftah A.M. Shushni, Asma Belkheir. Antibacterial and antioxidant activities of Mentha piperita L Arabian Journal of Chemistry, 2015; 8: 322–328.

40. Desam Nagarjuna Reddy Abdul Jabbar Al-Rajab, Mukul Sharma, Mylabathula Mary Moses B, Gowkanapalli Ramachandra Reddy Mohammed Albratty. Chemical constituents, in vitro antibacterial and antifungal activity of Mentha Piperita L. (peppermint) essential oils *Journal of King Saud University – Science*, 2019; 31: 528–533.
41. Fatma Rashid Salim Satmi, Mohammmad Amzad Hossain, In vitro antimicrobial potential of crude extracts and chemical compositions of essential oils of leaves of Mentha piperita L native to the Sultanate of Oman. Pacific Science Review A: *Natural Science and Engineering*, 2016; (18): 103e106.
42. Kuroyanagi T, Saito M. Effect of prednisolone and glycyrrhizin on passive transfer of experimental allergic encephalomyelitis. Arerugi, 1966; 15: 67–74.
43. Cyong J, Otsuka Y. A pharmacological study of the anti-inflammatory activity of Chinese herbs. A review. Acupunct Electrother Res, 1982; 7: 173–202.
44. Sekizawa T, Yanagi K, Itoyama Y. Glycyrrhizin increases survival of mice with herpes simplex encephalitis. *Acta Virol*, 2001; 45: 51–54.
45. Barfod L, Kemp K, Hansen M, et al. Chalcones from Chinese liquorice inhibit proliferation of T cells and production of cytokines. *Int Immunopharmacol*, 2002; 2: 545–555.
46. Kuroyanagi T, Saito M. Effect of prednisolone and glycyrrhizin on passive transfer of experimental allergic encephalomyelitis. *Arerugi*, 1966; 15: 67– 74.
47. Mitscher L, Park Y, Clark D. Antimicrobial agents from higher plants. Antimicrobial isoflavonoids and related substances from Glycyrrhiza glabra L. var. typica. *J Nat Products*, 1980; 43: 259–269.
48. Tsukiyama R, Katsura H, Tokuriki N, et al. Antibacterial activity of licochalcone A against spore-forming bacteria. *Antimicrob Agents Chemother*, 2002; 46: 1226–1230.
49. Wang ZY, Nixon DW. Licorice and cancer. Nutr Cancer. 2001; 39: 1–11.
50. Takahashi T, Takasuka N, Iigo M, et al. Isoliquiritigenin, a flavonoid from licorice, reduces prostaglandin E2 and nitric oxide, causes apoptosis, and suppresses aberrant crypt foci development. *Cancer Sci*, 2004; 95: 448–453.
51. Kanazawa M, Satomi Y, Mizutani Y, et al. Isoliquiritigenin inhibits the growth of prostate cancer. *Eur Urol*, 2003; 43: 580–586.
52. Dhingra D, Parle M, Kulkarni SK. Memory enhancing activity of Glycyrrhiza glabra in mice. *J Ethnopharmacol*, 2004; 91: 361–365.

53. M.R. Abedini, N. Erfanian, H. Nazem, S. Jamali, R. Hoshyar, Anti-proliferative and apoptotic effects of Ziziphus Jujube on cervical and breast cancer cells, *Avicenna J. Phytomedicine,* 2016; (6): 142–148
54. Q.H. Gao, C. Sen Wu, M. Wang, The Jujube (Ziziphus Jujuba Mill.) fruit: a Review of current knowledge of fruit composition and health benefits, *J Agric Food Chem*, (61): 3351–3363.
55. M. Keerthi, P. Venkateswararao, P. Devi, G. Kanaka, M. Laxmi, P. Venu, Phytochemical screening and anti helmenthic activity on the fruits of Ziziphus jujuba, Pharmaceut. *Innovat J*, 2016; (5): 107–109.
56. A. Rajopadhye, A.S. Upadhye, Estimation of bioactive compound, maslinic acid by PTLC, and evaluation of hepatoprotective activity on fruit pulp of Ziziphus jujuba Mill, Cultivars in India, evidence-based complement, *Altern. Med,* 2016 (2016).
57. Shokouhsadat Hamedi, Amir Ali Arian, Mohammad Hosein Farzaei. Gastroprotective effect of aqueous stem bark extract of Ziziphus jujuba L. against HCl/Ethanol-induced gastric mucosal injury in rats. *J Tradit Chin Med*, December, 15; 35(6): 666-670.
58. H.P. Jeong, J.L. Hyun, B.K. Sang, Y.B. Ju, H.S. Yeon, Protection of NMDA-induced neuronal cell damage by methanol extract of Zizyphi Spinosi Semen in cultured rat cerebellar granule cells, *J Ethnopharmacol*, 2004; 95: 39e45.
59. Z.C. Peng, J. Zhu, Research advances in chemical constituents and pharmacological effects of semen Ziziphi Spinosae, Lishizen Med. *Matter Med. Res*, (12): 86e87.
60. Shengying An, Guanzhong Liu, Xin Guo, Yahui An, Renyu Wang. Ginger extract enhances antioxidant ability and immunity of layers, Animal Nutrition, December 2019; 5(4): 407-409.