The Pharma Innovation Journal 2015; 4(3): 15-17

www.ThePharmaJournal.com

The Pharma Innovation

ISSN: 2277- 7695
TPI 2015; 4(3): 15-17

www.thepharmajournal.com
Received: 17-03-2015
Accepted: 27-04-2015

Avinash Singh
Associate Professor
Warner School of Food and Dairy Technology, Sam Higginbottom Institute of Agriculture Technology & science (Deemed to be University), Allahabad, Uttar Pradesh – 211007, India

Ramesh Chandra
Dean and Profesor
Warner School of Food and Dairy Technology, Sam Higginbottom Institute of Agriculture Technology & science (Deemed to be University), Allahabad, Uttar Pradesh - 211007, India

Mohd Nayeem Ali
Ph.D. Scholar, Warner School of Food and Dairy Technology, Sam Higginbottom Institute of Agriculture Technology & science (Deemed to be University), Allahabad, Uttar Pradesh - 211007, India

Correspondence:
Avinash Singh
Associate Professor
Warner School of Food and Dairy Technology, Sam Higginbottom Institute of Agriculture Technology & science (Deemed to be University), Allahabad, Uttar Pradesh - 211007, India

Rate of extraction and phytochemical screening of selected medicinal herbs for herbal yoghurt

Avinash Singh, Ramesh Chandra, Mohd Nayeem Ali

Abstract
Medicinal herbs have bioactive compounds which are used for curing of various human diseases and also play an important role in healing. The present study involved extraction and Phytochemical screening of eight different medicinal herbs i.e. *Saussurea lappa, Cichorium Intybus Linn, Inula racemosa Hook. F, Taraxacum officinale, Anacardium occidentale Linn, Asparagus officinalis Linn, Helianthus annuus Linn,* and *Anacyclus pyrethrum DC*. The extract of herbs samples were used for the phytochemical analysis to find out phytochemical constituents in the selected medicinal herbs. The result of the phytochemical screening showed presence or absence of Alkaloids, Glycosides, Terpenoids, Steroids, Tannins, Flavonoids, Saponins, anthraquinones and reducing sugar in the selected medicinal herbs.

Keywords*:* Phytochemical, Antimicrobial, Anticancer, Antidiabetic,

1. Introduction
Medicinal plants have beneficial nature for human health. The development in the field of modern medicine temporarily subdued the traditional herbal medicine. It has now staged a comeback and "herbal renaissance" is blooming across the world. The acceptance of traditional medicine as an alternative form of health care and the development of microbial resistance to the available antibiotics has lead researchers to investigate the antimicrobial activity of herbal powder [18]. In the light of the above ayurvedic tradition, it is possible to make milk based ayurvedic products which can find potential market in India and Europe. The search for unique food ingredients and flavours with enhanced health properties is at present one of the key global market trends [11]. Herbs and Spices are a novel source of functional flavouring agents. There is now mounting scientific evidence of health benefits of herbs and spices including antioxidant, antimicrobial, anti-inflammatory and anticarcinogenic properties [16, 19]. The largest published study to date which tested the antioxidant activity of 1113 food samples found that within the top 50 foods with antioxidant properties, the top five were spices [4]. The present investigation was on qualitative Phytochemical screening of selected herbs used in preparation of herbal yoghurt.

2. Materials and Methods
2.1 Preparation of extracts
herbs of *Cichorium Intybus Linn* and *Inula racemosa Hook, Saussurea lappa, Taraxacum officinale, Anacardium occidentale Linn, Asparagus officinalis Linn, Helianthus annuus Linn,* and *Anacyclus pyrethrum DC* were obtained from Kashmir's local medicinal shop. Both were air-dried in the dark at room temperature (RT) and then ground to powder using a mechanical grinder. Powders were extracted in Soxhlet apparatus using water as solvent at the end of 24 hrs by maceration in water. The solvent was then removed under reduced pressure in a rotary evaporator. Extracts were first filtered using Whatman No. 1 filter papers, filtrates were evaporated to dryness at RT in a steady air current. All dried crude extracts were made from one lot of each herb and were stored at 5 °C until required for testing. The extracts were dissolved in water or 50% dimethyl sulfoxide (DMSO) before use.

2.2 Phytochemicals screening of herbs
Qualitative Phytochemical analysis of herbs was conducted according to the method Described alkaloids [24], flavones [23], saponins [23], tannins [26], flavonoids [25], Phenols [27].

3. Result and Discussion

The research work carried out on the eight selected medicinal herbs. Extraction rate and Phytochemical screening result of herbs *Saussurea lappa, Cichorium Intybus Linn, Inula racemosa Hook. F, Taraxacum officinale, Anacardium occidentale Linn, Asparagus officinalis Linn, Helianthus annuus Linn,* and *Anacyclus pyrethrum DC* sowed in Table A and Table B.

Table A: Rate of Extraction: in Soxhlet apparatus using water as solvent at the end of 24 hrs

Herbs	Wt. of powder (g)	Quantity of extract (ml)	Rate of extraction (g/ml)	Filtrate Brix°		pH
				before	after	
Saussurea lappa	10	13.44	1.34	16	16	5
Cichorium Intybus Linn	10	7.98	0.8	37	36	4.5
Inula racemosa Hook. F	10	30.64	3.06	10	10	5.8
Taraxacum officinale	10	13.36	1.33	23	16	5.5
Aracardium occidentale linn	10	12.66	1.26	34	30	4.2
Asparagus officinalis Linn	10	11.87	1.18	47	45	4.5
Helianthus annus Linn	10	22.6	2.26	16	12	5.4

The highest Brix °was obtained in extract of Asparagus officinalis Linn followed by Cichorium Intybus Linn, Aracardium occidentale linn, Taraxacum officinale, Saussurea lappa, Helianthus annus Linn and Inula racemosa Hook. F and the rate of extraction were reverse of above.

Alkaloids showed presence in *Taraxacum officinale, Anacardium occidentale Linn, Asparagus officinalis Linn, Helianthus annuus Linn* herbs extract. Glycosides showed absence in *Cichorium Intybus Linn, Taraxacum officinale, Anacyclus pyrethrum DC* herbs extract. Terpenoids only absence in *Anacardium occidentale Linn* herb extract. Steroids showed presence in *Inula racemosa Hook, Anacardium occidentale Linn, Helianthus annuus Linn* herbs extract. Tannins showed absence in *Cichorium Intybus Linn, Asparagus officinalis Linn* herbs extract. Reducing sugar showed absence in *Saussurea lappa, Inula racemosa Hook* herbs extract. Flavonoids showed presence in *Saussurea lappa, Inula racemosa Hook. F, Taraxacum officinale, Anacardium occidentale Linn* herbs extract. Saponins showed absence in *Anacardium occidentale Linn* herb extract. Anthraquinones showed absence in all herbal extract.

Table B: Preliminary Phytochemical screening of herbal extract.

Herbs	alkaloids	glycosides	terpenids	steroids	tannins	Reducing sugar	Flavonoids	saponins	anthraquinones
Saussurea lappa	-	+	+	-	+	-	+	+	-
Cichorium Intybus Linn	-	-	+	-	-	+	-	+	-
Inula racemosa Hook. F	-	+	+	+	+	-	+	+	-
Taraxacum officinale	+	-	+	-	+	+	+	+	-
Anacardium occidentale Linn	+	+	-	+	+	+	+	-	-
Asparagus officinalis Linn	+	+	+	-	-	+	-	+	-
Helianthus annuus Linn	+	+	+	+	+	+	-	+	-
Anacyclus pyrethrum DC	-	-	+	-	+	+	-	+	-

(-) indicates absence and (+) indicates present

The alkaloids are believed to function as defensive elements against predators, especially mammals because of their general toxicity and deterrence capability as well as analgesic, anti-inflammatory and adaptogenic activities which help to alleviate pains, developed resistance against diseases and endurance against stress [5]. Flavonoids are generally nontoxic and manifest a diverse range of beneficial biological activities. Epidemiological studies have provided data that high dietary intake of Flavonoids with fruits and vegetables could be associated with low cancer prevalence in humans, these include carcinogen inactivation, anti-proliferation, cell cycle arrest, induction of apoptosis and differentiation, inhibition of angiogenesis, antioxidation and reversal of multidrug resistance mechanisms [21]. The flavonoids are polyphenolic compounds found as integral components of the human diet. They are universally present as constituents of flowering plants, particularly of food plants [9]. Several plants and spices containing Glycosides, Terpenids and flavonoid derivatives have found application as disease preventive and therapeutic agents in traditional medicine in Asia for thousands of years [10]. Phenolic compounds have the ability to reduce risk for development or treatment of cancers, cardiovascular disorders, obesity, diabetes, aging-diseases, urinary tract infections, and periodontal disease [22]. The plant derived polyphenolic compounds are promising nutraceuticals for control of various disorders such as cardiovascular, neurological and neoplastic disease. The richness of the polyphenolic contents of green tea and red wine has made them popular choices for associated anticancer and cardiovascular health benefits [8]. Saponins from plants sources are also responsible for some pharmacological effects like anti-inflammatory, molluscicidal, antimicrobial, antispasmodic, antidiabetic and anticancer, hypocholesterolemic, andtioxidant, anticonvulsant and analgesic, anthelmintic, antitussive and cytotoxic activities [2]. Generally saponins are toxic, but [12] showed that consumption of saponins by human beings may be beneficial in reducing heart disease (by binding of saponins with plasma membrane and cholesterol). The presence of steroidal saponins could develop resistance to viral diseases such as cancer [15]. The saponins had expectorant action which is very useful in the

management of upper respiratory tract inflammation and stop bleeding and in treating of wounds. Phytosterols are currently used for treating symptoms of uterine cramps, abdominal colic and menstrual irregularity while topical progesterone in pharmacological doses is used to treat a variety of conditions including premenstrual syndrome, anovulatory cycles, dysfunctional uterine bleeding, and menopausal symptoms [6]. An inverse association of sterols (Beta sitosterol and stimasterol) interpreted against stomach cancer. This effect of plants sterol could have a major public health impact in a disease such as gastric cancer. This relationship remains after control for other antioxidant, such as Vitamin C [17]. Cholesterol and bile acid may promote colon cancer. The consumption of plant sterol, indirectly involved in bile secretion mechanisms and its effects lowered bile acid secretion. These effects may lead to a decreased risk for colon cancer development [13]. The defensive properties of tannins are generally attributed to their ability to bind proteins [8]. Plant tannins extracted from various sources have been also shown to possess antitumor-promoting effects in the skin of hairless mice by inhibiting several biochemical markers of tumor promotion induced by exposure to ultraviolet-B light. The protective effects of tannins against many types of cancers lead us to postulate that these polyphenols are universal antitumor agents. Other effects include their ability to hepatocellular carcinoma, accelerate blood clotting, reduce blood pressure, decrease the serum lipid level and modulate immunologic responses depending on the tannin doses and types used [3].

4. Conclusion

The present investigation on selected medicinal herbs added in herbal yoghurt for presence and absence of Phytochemical can be determined accurately, conveniently, and rapidly using Phytochemical screening test. The selected medicinal herbs are the source of the primary metabolites i.e. Alkaloids, Glycosides, Terpenoids, Steroids, Tannins, Flavonoids, Saponins, anthraquinones and reducing sugar. Medicinal herbs play a vital role in preventing various diseases.

5. Reference

1. Ali MN, Prasad SGM, Gnanaraja R, Srivastava P, Ibrahim M, Singh A. Assess the antioxidant activity of herbal ice cream prepared by selected medicinal herbs, The Pharma Innovation Journal 2014; 3(7):57-59.
2. Ali N, Syed AS, Shah IW, Mehreen AGG, Khan I. Cytotoxic and anthelmintic potential of crude saponins isolated from *Achillea wilhelmsii* C. Kochand *Teucrium stocksianum* boiss. BMC Complementary and Alternative Medicine 2011; 11:106.
3. Hala U, Gali MIH, Younes JJ, Karchesy MEE. Plant Tannins Inhibit the Induction of Aberrant Crypt Foci and Colonic Tumors by 1,2-Dimethylhydrazine in Mice. Nutrition and Cancer 2011; 39(1):108-116.
4. Halvorsen BL, Carlsen MH, Phillips KM, Bohn SK, Holte K, Jacobs DR Jr. Content of redox-active compounds (i.e., antioxidants) in foods consumed in the United States. American Journal of Clinical Nutrition 2006; 84(1):95e135.
5. Hartmann T. Alkaloids In herbivores; their interaction with secondary plant metabolites, The chemical participants, Edn 2, G.A. Rosenthaland M.R. Berenbaum, eds Academic press, San Diego 1991; I:33-85.
6. Hudson T. Townsend Letter for Doctors, 1996, 156.
7. Majeed M, Prakash L. Probiotics for health and wellbeing. Sabinsa Corporation, 2007.
8. Mazid M, Khan TA, Mohammad F. Role of secondary metabolites in defense mechanisms of plants. Biology and Medicine 2011; 3(2):232-249.
9. Miean KH, Mohamed S. Flavonoid (Myricetin, quercetin, kaempferol, luteolin and apigenin) content of edible tropical plants. J Agric Food Chem 2001; 49:3106-3112.
10. Nakatani N. Phenolic antioxidants from herbs and spices. Biofactors 2000; 13:141-146.
11. Netzel M, Netzel G, Tian Q, Schwartz S, Konczak I. Native Australian fruits e a novel source of antioxidants for food. Innovative Food Science and Emerging Technology 2007; 8:339e346.
12. Price KR, Johnson IT, Fenwick GR, The chemistry and biological significance of saponins in foods and feed stuffs. CRC Critical Reviews Food Sci Nut 1987; 26:27-135.
13. Rao AV, Janezic SA. The role of dietary phytosterols in colon carcinogenesis. Nutr Cancer 1992; 18(1):43-52.
14. Ruchi KS, Upadhyay R, Trivedi US, Tiwari S. Qualitative phytochemical analysis of *eulophia nuda lind* an endangered terrestrial orchid, International Journal of Pharmaceutical Research and Bio Science 2012; 1(5):456-462.
15. Shahidul AM, Quader MA, Rashid MA. HIV inhibitory diterpenoid from Anisomelesindica. Fito 2000; 71:574-76.
16. Srinivasan K. Spices as nutraceuticals with multi-beneficial health effects. Journal of Herbs, Spices and Medicinal Plants 2004; 11.
17. Stefani DE, Boffetta P, Ronco L, Alvaro BP, Deneo PH. Plant Sterols and Risk of Stomach Cancer: A Case-Control Study in Uruguay Nutrition and Cancer 2001; 37(2):140-144.
18. Sumathi, Parvathi. Antimicrobial activity of some traditional medicinal plants. Journal of Medicinal plant research 2010; 4:316-321.
19. Tapsell L, Hemphill I, Cobiac L, Patch C, Sullivan D, Fenech M. Health benefits of herbs and spices: the past, the present, the future. Medical Journal of Australia 2006; 185:S4eS24.
20. Ullah MF, Khan MW. Food as medicine: Potential therapeutic tendencies of plant derived poly phenolic compounds. Asia Pak J Cancer Prev 2008; 9:187-195.
21. Wenfeng H, Kun Z. Cytotoxicity of a Plant Steroidal Saponin on Human Lung Cancer Cells. Asian Pacific J Cancer Prev 2011; 12:513-517.
22. Yuan W, Zhou L, Deng G, Wang P, Creech D, Li S. Anthocyanins, Phenolics, and Antioxidant Capacity of Vaccinium L. in Texas, USA. Pharmaceutical Crops 2011; 2:11-23.
23. Borgio JF, Thorat PK, Lonkar AD. Antimycotic and antibacterial activities of *Gynandropis pentaphylla* DC extracts and its phytochemical studies. The Int J Microbiol 2008; 5:1-14.
24. Eloff JN. Quantifying the bioactivity of plant extracts during screening and bioassay-guided fractionation. Phytomed 2004; 11:370-371.
25. Wagner H, Bladt S, Zgainski E. Plant Drug Analysis. Edn 2, Berlin: Springer, 1983.
26. Harbome JB. Phytochemical methods. In a guide to modern techniques of plant analysis Edn 3, 1998, 40-137.
27. Raman N. Phytochemical Technique, New Indian Publishing Agencies: New Delhi, 2006, 19.