

Herbal Product- A Survey to Know the Impact on Daily Life

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Abstract

Herbal products, herbal cosmeceuticals, nutraceutical, phytopharmaceuticals and Ayurveda medicines are being used around the world increasingly. 25% prescription contains herbal/medicinal plant ingredients & 80% relies on herbal products for health care. It is very important for students of pharmacy to be aware about importance of herbal products and its prevalence in their daily life. Our aim is to made student aware about importance and prevalence of herbal products and to measure impact of herbal products in our daily life. A google form was prepared with questionnaire having both open and close ended questions on herbal products. 100 students of 5th semester B. pharmacy were given one-month time and asked to search and enter details about herbal products present at their home used by them and their family. Then all data were expressed as counts and percentages. A total of 86 students have filled out form. We have found that total of 534 herbal products /formulations are being used by students and their family with maximum of 20 & with average of 6.44 in each house. Maximum used category of was herbal cosmeceuticals 33.9%, followed by house hold herbs 20.2%, followed by AYUSH products 16.5% followed by herbal products containing phytochemicals. Most used nutraceutical herb was Fenugreek 82.6% followed by ginger and garlic with 77.9%. Maximum used herbal cosmetics category product is herbal shampoo 83.7% followed by herbal oil with 66.3%. Maximum used Ayurveda product category was churna with 45.3%. Maximum used house hold herbal herbs were ginger. So, current survey revealed that herbal products impact in each corner of our daily life.

Keywords: *Herbal products, survey on herbal, nutraceutical, herbal shampoo*

Introduction

Total of 80% of the world's population relies on traditional medicine for their health care needs. total of 170 WHO member countries out of 194. [1] Herbal products are need and topic of interest in developing and developed countries, respectively. [2] The use of herbal medicine as an alternative remedy for COVID-19 in combination with modern medicine, and has released several recommendations on herbal therapy during pandemic. Several herbal immune booster's formulations, and house hold herbs gives symptomatic relief were used during COVID -19 lockdown. People believes that herbal products are safe, effect and there are no side effects. [2-3] The projection made by World Health Organization (WHO) states that the global herbal market would grow to \$5 trillion by 2050. India stands as the 2nd

largest exporter of herbal medicines only after China. Both the countries are producing over 70 percent of the herbal medicines demand across the globe. India exported raw herbs worth USD330.18 million during 2017–18 with a growth rate of 14.22% over the previous year. As per a published report of NMPB, 2017, out of 6500 medicinal plant species traditionally used by Indian communities. [4] According to the ‘All India Trade Survey of Prioritized Medicinal Plants, 2019’, demand for high-value medicinal plants increased by 50%. [5] Overall people trust on herbal products and thus, herbal products are high in demand for quality herbal products be it herbal medicinal products or phytopharmaceuticals or traditional medicines or nutraceutical claims immune boosters or cosmeceuticals which contains medicinal plants. Thus herbal products are not only as herbal medicines but botanicals are present in categories like nutraceuticals and cosmeceuticals. Thus, it is very for pharmacy students to understand the importance and difference between different types of herbal products and its impact on their daily life. We used 6th semester B pharm syllabus for survey questionnaire preparation and used survey form also as one of the active learning technique “background knowledge probe”. So, we have decided to perform one survey on different herbal products used by pharma students and their families.

Experimental

Materials and methods:

Survey form was prepared by using google form.

General procedure:

A Google form was prepared with questionnaire having both open and close ended questions on herbal products. Google form contains total of eight questions contains both check box and paragraph options along with email of students on herbal products. Selection of questions were based on syllabus of 6th sem b pharmacy by Pharmacy Council of India. [6] Emails were then sent to students of 6th semester B. Pharmacy before at initial stage of their study. Form was sent for total 100 number of students. Participating students were form diverse regions of India and contains both male and female students. Ratio of girl students to boy students were 25:75. All students were then orally informed to fill out form within 8 days’ time period. Students were informed to check for not only herb or herbal based products used by them but also to check at their home. So actual survey size can be considered as 400 (considering 4 individuals per home). Survey was performed in month of December, 2021. Survey form contains open ended question on how many herbs or herbal based products are being used at their home? followed by multiple checkbox question, which category of herbal products they are using? with options like herbal cosmetics, AYUSH (Ayurveda, unani, siddha or homeopathy) products, phytopharmaceuticals or herbal medicinal products, house hold crude drugs or any other herbal products. Followed by a question about name of products with its use. Followed by a multiple checkbox option question was asked about nutraceutical.

Whether they have any nutraceutical products at their home? (with options of fenugreek, alfalfa, ginger, garlic, honey, amla, ginseng, ashwagandha, spirulina, chicory or none of the above). Next question was about category of herbal cosmetics. Which herbal cosmetic is there at your home? (with options like herbal shampoo, herbal bath, herbal cream, herbal oil, herbal pack, herbal face wash, herbal perfume, herbal serum, herbal soap, herbal oral hygiene products) followed by a question about which ayurvedic formulation is present at your home? (with options like Asava, arista, Gutika, churna, lehya, Bhasma or any other or none of above) one more open ended question was asked about house hold remedies that Any house hold herbal remedies you are using to cure minor ailment at home?

Statistical analysis:

Statistical analysis was done using the statistical package of MS Excel 2016, then converted into representable graphical format. Simple descriptive statistics were used together with Chi-square test. The chosen level of significance was set at $P < 0.05$.

Results and Discussion

Total 86 students have responded in google form out of 100 students and completed questionnaire. Survey revealed that all 86 students have been using herbal products at their home. Total number of herbal products found at 86 students home are 534. Maximum number of herbal products used by any students is 20. Minimum number of herbal products used by students is 1. Average number of herbal products present at student’s home is 6.44. Our survey reconfirms the WHO (World health organization) survey that 80% people still depend on traditional medicine and similar type of other survey done in Jordan. [1,7] Moreover, present survey also revealed that herbal products are prevalent at each home at least one.

Category of herbal products:

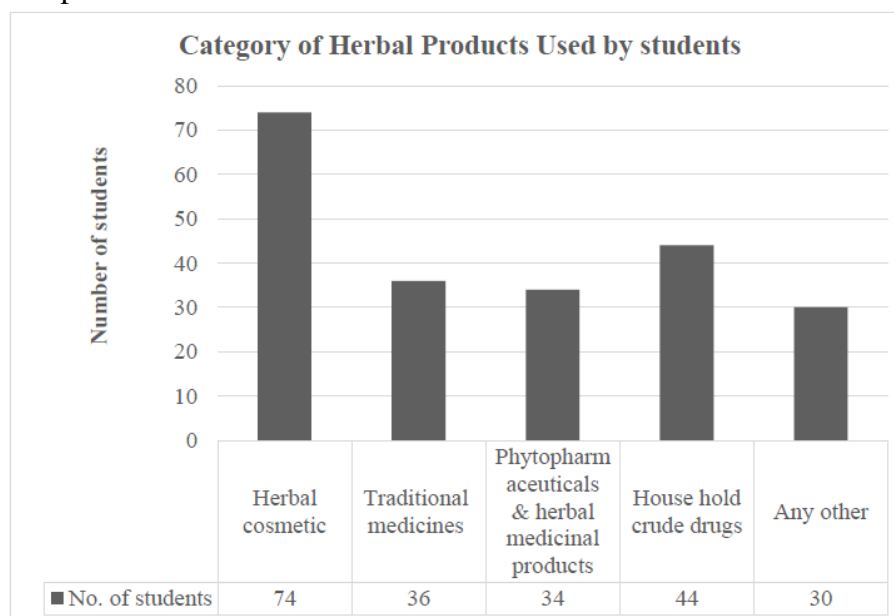


Fig. 1 Category of herbal products used by students.

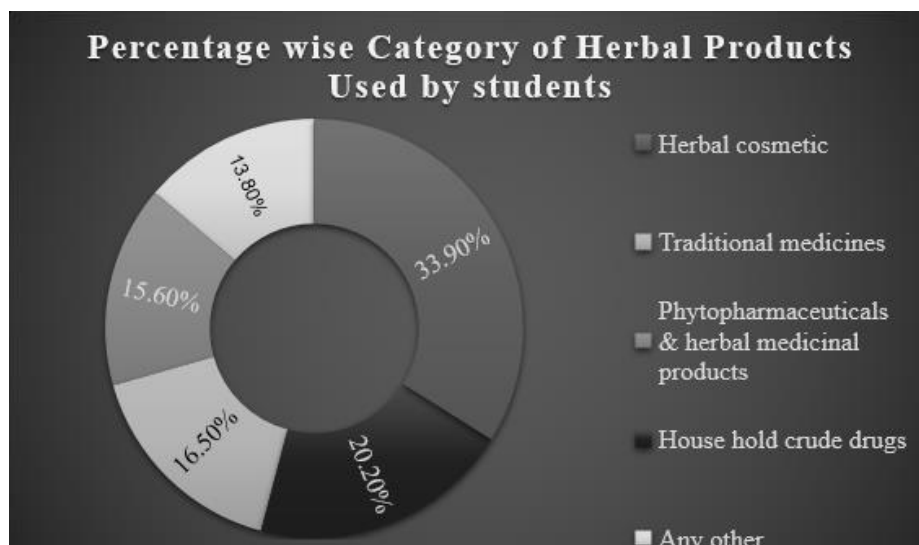


Fig. 2 Percentage wise category of herbal products used by students.

Fig. 1 & 2 indicates response presented in graphical format of the question that which category of herbal product is used by students or at their home? There were total five categories: Herbal cosmetics, Traditional medicines, phytopharmaceuticals and house hold crude drugs and any other than above mentioned category. Out of 86 total 74 students and their home are found with herbal cosmetics products. Maximum used category was herbal cosmetics, with 33.9%. After herbal cosmetic 2nd maximum used category was house hold crude drugs with 44 number of students and with 20.2%. 3rd maximum used category was Traditional medicinal formulation of AYUSH (Ayurveda, Siddha, Unani, Siddha and Homeopathy) with 36 number of students and with 16.5%, Which is followed by phytopharmaceuticals and herbal medicinal products with 34 number of students and with 15.6%. Least used category was other herbal products with 30 number of students and with 13.8%. Herbal cosmetics are defined as the products which prepared by or included plants and/or herbal components which are combination of many natural molecules or compounds. [8] Traditional medicinal products are those which are prepared as mentioned in scriptures of that particular system of medicines. Traditional medicine is the sum total of the knowledge, skills and practices based on the theories, beliefs and experiences indigenous to different cultures, whether explicable or not, used in the maintenance of health and in the prevention, diagnosis, improvement or treatment of physical and mental illness. While house hold crude drugs are those which are used and prepared as per ethnobotanical knowledge passed to us by our own ancestor to us and generally available at our home. Phytopharmaceuticals purified and standardized fraction with defined minimum four bio-active or phytochemical compounds (qualitatively and quantitatively assessed) of an extract of a medicinal plant or its part, for internal or external use of human beings or animals for diagnosis, treatment, mitigation, or prevention of any disease or disorder but does not

include administration by parenteral route. [9] Herbal Medicinal products containing as active substances exclusively herbal drugs or herbal drug preparations. They may consist of herbal preparations made from one or more herbs. If more than one herb is used, the term mixed herbal product can also be used. They may contain excipients in addition to the active ingredients. [10] Thus, it is evident from current survey that maximum used of category from herbal products was herbal cosmetic. The reason behind it might be increased desire for looking good. Synthetic cosmetics quite frequently cause adverse reactions, and are commonest single reason for hospital referrals with allergic contact dermatitis. [11] 2nd position of House hold crude drug might be due to ethno medicinal knowledge transferred from ancestors to current generation in India. [12]

Nutraceutical product:

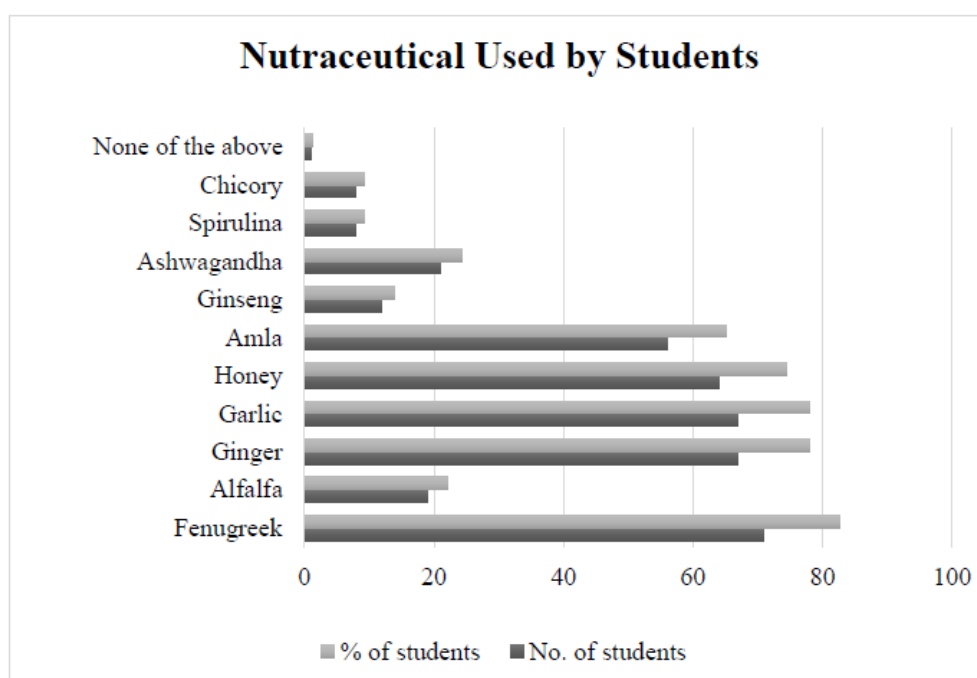


Fig.3 Nutraceutical products used by students.

Fig. 3 indicates answer of chart describing which of the nutraceutical was available at students' home? with options like Fenugreek, alfalfa, ginger, garlic, honey, Amla, ginseng, ashwagandha, spirulina, chicory or none of the above. From current survey it was found that maximum used herbal nutraceutical was fenugreek with 82.6%, followed by ginger and garlic with 77.9%. 3rd highest used herbal nutraceutical was honey with 74.4%, followed by Amla with 65.1%, followed by ashwagandha with 24.4%, followed by Alfalfa with 22.1%, followed by Ginseng with 14%, followed by spirulina and chicory each with 9.3%. Present survey found that out of 86 only 1 student home was not found with any nutraceutical product. Nutraceutical – a term coined by n 1989 by Stephen De Felice, is made up of two words 'nutrition' and 'pharmaceutical'. Nutraceutical is defined as food (or part of a food) that

provides medical or health benefits, including the prevention and/or treatment of a disease. [13] Nutraceuticals are classified as dietary fiber, probiotics, prebiotics, poly unsaturated fatty acids, antioxidant, polyphenols and spices. [14] Reason of picking up this special category of herbal product is it's growing market throughout the globe. For example, Global market which was approximately 400 billion USD (United States of America Dollar) in 2019 is expected to cross 700 billion USD with a CAGR (compound annual growth rate) of 8.3% by 2027. [15] Fenugreek being more popularity is due to scientific fact behind it's use as a nutraceutical. Fenugreek (*Trigonella foenum graecum*) is an annual plant belongs to the family Leguminosae. Fenugreek, seed and green leaves are popular as food and in as a medicine from ancient time in India. It contains phytochemical steroidal sapogenin-diosgenin, alkaloid-trigocoumarin, trigonelline, mucilage, volatile oil, bitter fixed oil, protein and carbohydrates- dietary fibers. Fenugreek is also rich source of iron total 33mg/100g dry weight. Fenugreek is used to enhance sensory quality of foods. Fenugreek possess medicinal properties such as anti-diabetic, anti-carcinogenic, hypo-cholesterolemic, antioxidant, and immune-modulatory effect. It is also used as a part of various food product developments as food stabilizer, adhesive, and emulsifying agent. [16]

Herbal cosmetic category:

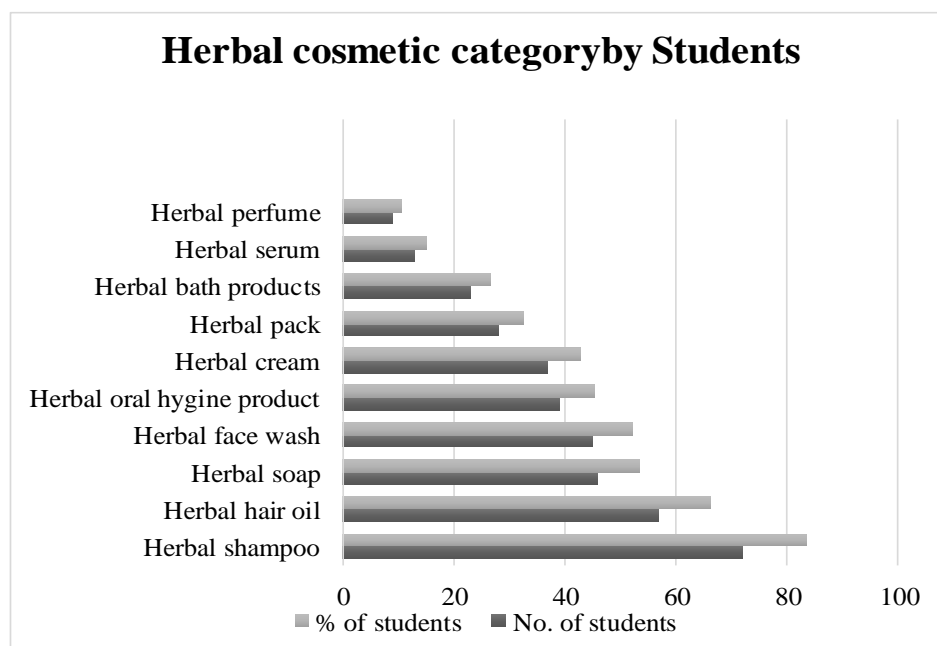


Fig. 4 Herbal cosmetic category used by students.

We have selected a question related to herbal cosmetic because The global herbal cosmetic products market size was estimated at US\$ 83.52 billion in 2021 and is expected to hit US\$ 130.2 billion by 2030, with CAGR of 5.06% during 2022 to 2030. [17] A question was asked to select herbal cosmetic category present at their home. Options were- herbal shampoo, herbal bath products (powder), herbal cream, herbal hair oil, herbal pack, herbal face wash,

herbal soap, herbal perfume, herbal serum, and herbal oral hygiene products. Fig. 4 indicates result of survey on category of herbal cosmetic products. The highest used herbal cosmetic was herbal shampoo with 83.7%, followed by herbal hair oil with 66.3%, followed by herbal soap with 53.5%, followed by herbal face wash with 52.3%, followed by herbal oral hygiene product with 45.3%, followed by herbal cream with 43%, followed by herbal pack with 32.6% followed by herbal bath product with 26.7% followed by herbal serum with 15.1% and herbal perfume at last with 10.5%. Present, survey revealed that most used category of herbal cosmetic product is herbal shampoo of different company. The Indian herbal shampoo market was valued at USD 318.1 million in 2021 and is projected to record a CAGR of 10.19% during the forecast period, 2022-2027. [18] Reason behind increased use of herbal shampoo is not only faith of people regarding safety aspect of herbals. But due to availability wide range of different herbal shampoo which is due to ease of introducing herbal extracts and phytochemicals in herbal shampoo.

Traditional medicine (specially ayurvedic formulation) category:

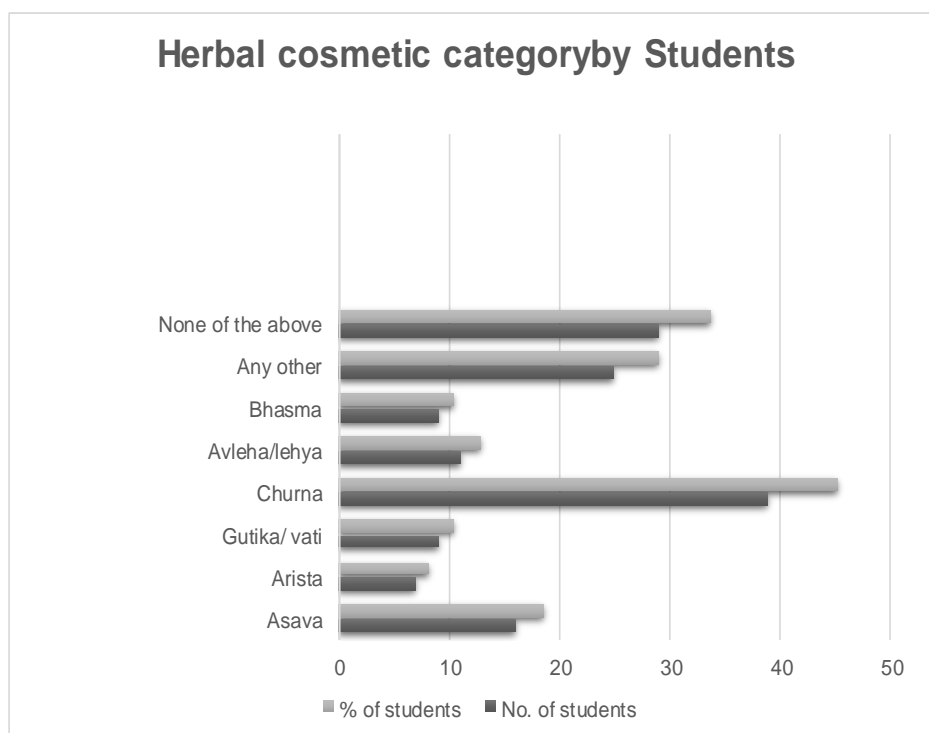


Fig. 5 Ayurvedic medicine category used by students.

Fig. 5 indicates the result of survey about a question asked that which ayurvedic formulation category used at their home? Options were: Asava, Arista, Gtika/vati, Churna, Avleha/lehya, Bhasma, any other, none of the above. Churna is defined as

Aristas and Asava is defined as are ayurvedic medicinal preparation made by soaking of drugs either in powder form or in form of decoction in solution of sugar or jiggery for specified period of time during which undergoes fermentation generating alcohol, thus

facilitating extraction of phytochemicals from drugs. Gutika/vati is defined as medicines prepared in the form of tablet or pills are known as vati and Gutika. These tablets are made of one or more crude drugs of plant, animal or mineral origin. Avleha/lehya is defined is a semi-solid preparation of drugs, prepared with addition of jaggery, sugar or sugar-candy and boiled with prescribed drug juice or decoction. Also known as Modaka, Guda, Khanda, Rasayana, Leha etc.

Table 1 House hold herbal remedies used by students and their relatives as primary treatment

Sr. no.	Name of herbal remedies	Ailments/ minor health problem
1	Ginger	Cough & abdominal pain
2	Holy basil & Vasaka	Cough
3	Turmeric	Cough, inflammation, wound healing, as face pack and injury
4	Ajwain & Asafoetida	Carminative and in stomachache
5	Clove	Dental analgesic
6	Neem bark and leaf	Dental, fever and skin problems
7	Prickly pear fruit juice	To increase Hemoglobin level
8	Aloe	Antidandruff, for hair shine and skin soothing, pimple
9	Honey	Throat infection, cold, cough, and minor burns
10	Black pepper	Cough and cold
11	Chirayeta and picrorrhiza	Fever
12	Vicks Tulsi	Throat infection
13	Calotropis leaf	Knee and back pain
14	Cinnamon decoction	Cough

Bhasma is defined as powder of a substance obtained by calcination. [19] In present survey analysis it was revealed that maximum used ayurvedic product was churna with 45.3%. 2nd highest category selected by students was none of above with 33.7%, followed by any other with 29.1%, followed by Asava with 18.6%, followed by Avaleha/Lehya with 12.8%, followed by Bhasma & Gutika both with 10.5%, and last arista with 8.1%. Only 36 students out of 86 students are using Ayurvedic formulation and only 77 formulations are of Ayurvedic traditional medicines out of total 534 formulations. Ayurvedic traditional formulation category was less than in earlier section even here also only few students have Ayurvedic formulation at their home. The reason behind it is Rule 170 of the Drugs and Cosmetics Act

1945, which was inserted through a gazette notification in 2018, under which advertisement of (AYUSH) Ayurveda, siddha, unani and homeopathic medicines are prohibited. [20] Many Ayurveda formulations are available as over the counter (OTC) products like churna, but certain formulation need valid medical prescriptions to purchase. Popularity of churna among all other category is its easy availability as OTC. Churna formulation contain fine powder of several herbal, minerals and plant origin crude drugs. Smaller the particle size greater is the absorption rate from g.i.t and hence the greater is bioavailability. [21]

House hold herbal remedies:

An open ended question asked was about house hold remedies. Any house hold herbal remedies you are using to cure minor ailment at home? In present survey we have found that each home is using house hold remedies to treat some minor ailments. Only one student has not mentioned about how and which house hold remedies they are using. We have compiled list of house hold remedies and ailments or problems by students and their relatives at home in table 1. Most used herb as house hold remedies are turmeric, clove and ginger, these three are also widely used food items as spices throughout Indian kitchen. Turmeric is dried rhizome of *Curcuma longa*, Family Zingiberaceae. Main phytochemical class present in turmeric is oleo resin. The resin present is known as curcuminoids the mixture of resin. Main phytochemical present is known as curcumin. It is proven that curcumin prevents release of inflammatory mediators, also antioxidant. It also depletes nerve endings of substance P, the neurotransmitter of pain receptors. Indian herbal pharmacopoeia has suggested key application as anti-inflammatory and as stomachic, which also supports use of turmeric lepa for treatment of inflammation. [22] Clove is dried flower bud of *Syzygium aromaticum*, family Myrtaceae. Main class of phytochemical present is volatile oil and main phytochemical present is phenolic ether Eugenol. Eugenol is proven antibacterial. German commission E. describes it key application in inflammatory changes of oral and pharyngeal mucosa, in dentistry and for topical anesthesia which supports use of clove oil by student as dental analgesic. [23] Ginger is rhizome of *Zingiber officinale*, family Zingiberaceae. Both form of ginger fresh as well as dried both are popularly used in India. The ayurvedic pharmacopoeia of India recommends dried rhizomes in dyspepsia, loss of appetite, anaemia, rheumatism, cough and dyspnoea, while fresh rhizome in constipation, colic, oedema and throat infection. According to Indian medicinal plants by C P Khare ginger contains gingerol and shaogaol which suppress gastric contraction, gastric secretion and reduce vomiting. Thus, both modern as well as traditional knowledge supports use of ginger as carminative, in stomach problem and in cough. [24] Minor health problems in which these house hold remedies used by students mostly are flatulence, stomach ache, cough, dental problem, dandruff in hair and injury. Thus, we have list of house hold remedies stating that “I am using xyz herb for xyz ailments” or “My mother is using xyz herb for xyz ailments” or “My father is using xyz herb for xyz ailments or “My sister is using xyz herb for xyz ailments” or

“My brother is using xyz herb for xyz ailments” or simply mentioned about use of crude drug in specific problems. Not only that, they have also mentioned about dosage and method of preparation of their house hold remedies. These shows success of current survey with our objective to use survey as background knowledge probe, so that whenever they study nutraceutical, or dosage form development they can connect scientific reason behind using it and get more interest in study and research of herbal drugs. These also prove that students have filled up the form genuinely with interest. These part of survey also proves that herbal drugs, formulations are not only present in our house but, we are utilizing to solve our daily life minor ailments, stomach ache, cough and hair or skin disorders.

From present survey it is very evident that most people use herbal or medicinal plant in either or form to solve their health, or cosmetic related problems with average ratio of 6.44. Most popular category of herbal products are herbal cosmetics followed by nutraceuticals among students. Most house hold herbal remedies used by students are turmeric, clove and ginger. Most minor problem they are facing and dealt with house hold remedies are flatulence, cough, dental, skin and hair problems or diseases.

Conclusions

Present survey suggest that herbal products are presently being used at different level with different category at most of home. Thus, it is very evident from present survey that whether we know or not herbal products have very deep impact in daily life not only due to their presence but also due to knowledge we have about herbals from our ancestor and its easy availability. Present survey can be used to resolve issue with current formulation present at their home. Students and researcher can also use present survey for direction of future research in herbal product development field of different category mainly novel drug delivery formulation in nutraceutical and cosmeceuticals. Researcher can also concentrate more investigation on house hold herbs like fenugreek, aloe, neem, ginger, garlic, turmeric, clove and ginger convert in to new drug delivery formulation for treatment of gastrointestinal and respiratory tract minor ailments due to wider acceptability.

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