EUROPEAN JOURNAL OF BIOMEDICAL AND PHARMACEUTICAL SCIENCES
http://www.ejbps.com

ISSN 2349-8870
Volume: 5
Issue: 12
183-186
Year: 2018

ADULTERATION AND SUBSTITUTION OF ASU DRUGS: A CHALLENGE

Dr. Abhijeet G. Pachpor*[1], Dr. Najneen M. Bhaldar[2], Dr. P. D. Dongare[3], Dr. N. B. Swami[4] and Dr. Dipali Pawar[5]

*[1]PG. Scholar, Dravya Guna Department, Govt. Ayurved College Osmanabad.
[2]PG. Scholar, Kriya Sharir Department, Govt. Ayurved College Osmanabad.
[3]Associate Professor, Kayachikitsa Department, Govt. Ayurved College Osmanabad.
[4]Associate Professor, Swasthavritta Department, Govt. Ayurved College Osmanabad.
[5]PG. Scholar, Kriya Sharir Department, Govt. Ayurved College Osmanabad.

***Corresponding Author: Dr. Abhijeet G. Pachpor**
PG. Scholar, Dravya Guna Department, Govt. Ayurved College Osmanabad.

Article Received on 14/10/2018 **Article Revised on 04/11/2018** **Article Accepted on 25/11/2018**

ABSTRACT
Plants are being used to treat diseases since *vaidik kala*, their effectiveness has been proved in treating varieties of diseases as mentioned in *Bhrihatrayi* of *Ayurveda* i.e. *Charak samhita, Sushrut samhita, Vaghbhat samhita.* Our Indian peoples are now becoming aware of side effects and adverse reactions of synthetic drugs (allopathic medicine). *Ayurvedic* herbs are known for their minimum side-effectsproperty. Majority of Indian population still rely on medicinal herbs for their primary health care. But because of non availability of medicinal herbs due to deforestation, non availability of many species, incorrect identification of medicinal plants, time duration required for cultivation of plants, andsome species became endangered and cannot be used in *Ayurvedic* treatment, thisresult in serious and offensive practice i.e. Adulteration and Substitution of herbal medicines. The quality medicine only can cure the disease; the quantity of quality drug needed to treat disease is relatively small and require short period for its action. Adulterated and substituted medicinal products are responsible for bad image of *Ayurvedic* treatment regarding no results or needs longer time of duration with large amount of doses to treat the diseases.

KEYWORDS: Adulteration, substitution, ASU drugs.

INTRODUCTION
While working in day to day medical practice a practitioner has to face the problem of higher dose of *Ayurvedic* drugs and comparatively lower results in long term of use. Such practice can cause bad impression of *Ayurveda* in the field of medical practice. These unwanted effects are caused due to adulteration and substitution in *Ayurvedic* drugs, due to adulteration faith of people in herbal drugs has declined. As per The Drug and Cosmetic Act1940, adulteration is defined as admixture or substitution of original drug with inferior, spoiled, spurious defective sometimes useless other parts of same or different plant or harmful substances or drug which don't confirm official standard.[1] Recent advance techniques of adulteration make it very difficult to trace the adulteration.[2] According to book of Pharmacognosy written by Kokate CK, Purohit AP & et.al (2007) there are few types of adulteration and substitution mentioned in this article.

MATERIALS AND METHODS

1. Types of Adulterations[3]

1.1 Addition of substandard/inferior commercial varieties

Fig. 1: Papaya seeds.

Fig. 2: Marich seeds.

This is the most common type of adulteration. In above type the adulterants shows similarity with original crude drug morphologically or chemically or therapeutically but are **sub-standard in nature** and cheaper in cost. e.g. Papaya seeds resemble morphologically with Marich seeds and largely admix in the sample of Marich, though it doesn't have chemical property or therapeutic effect similar to Marich.

1.2 Addition of superficially similar inferior drugs

Substitution of superficially similar but cheaper natural materials obtained from same species. E.g. Addition of Clove stalks to genuine Cloves

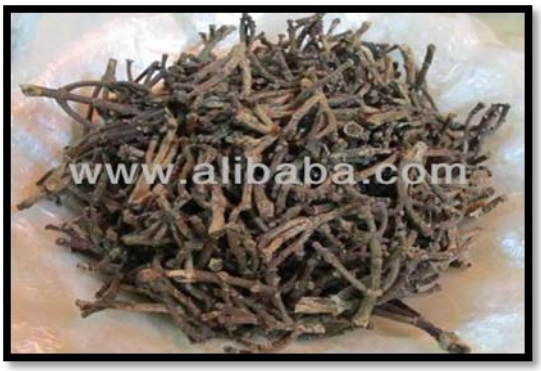

Fig. 3: Clove stalk.

Fig. 4: Cloves.

1.3 Substitution with exhausted materials

This type of substitution is made mainly for volatile oil containing drugs like clove, fennel, ginger, coriander etc. due to extraction such drugs get devoid of color and taste due to extraction.

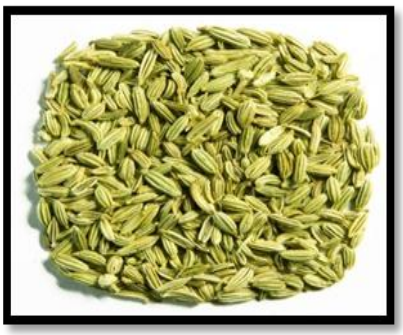

Fig. 5: Fennel.

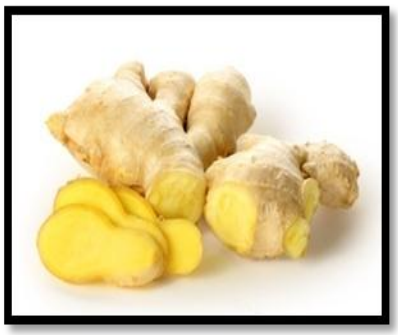

Fig. 6: Garlic.

Fig. 7: Coriander.

1.4 Substitution with artificially prepared substances

To provide the general form and appearance of various drugs, some materials are artificially manufactured and are used as substitute of the original one. e.g. 1. Artificial invert sugar is used as substitute for honey.

Fig. 8: Invert sugar.

Fig. 9: Honey.

2. Paraffin wax is treated with yellow color and substituted for bees wax.

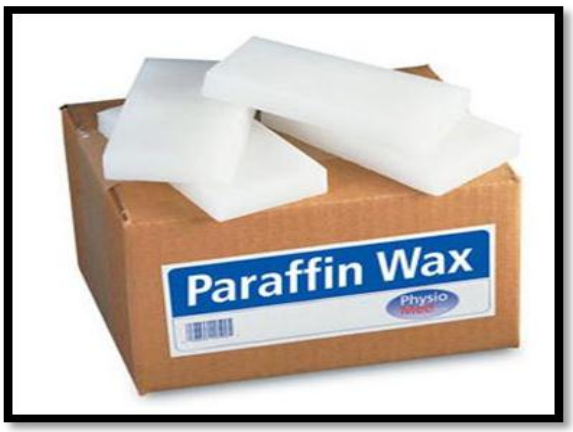

Fig. 10: Paraffin wax.

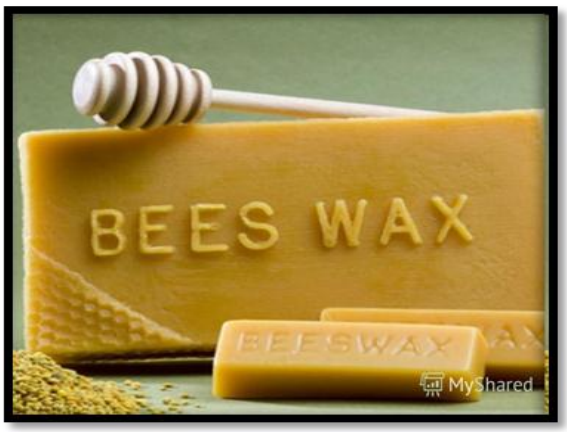

Fig. 11: Bee wax.

1.5 Substitution with synthetic chemicals to fortify inferior varieties

Natural characters of exhausted drugs are enhanced by adding synthetic chemicals.

E.g.1.synthetic Citral added to oil of Lemon.

Fig. 12: Lemon.

2. Addition of synthetic balsamic acids to Tolu Balsam.

1.6 Addition of vegetative parts of same plants

The miniature plants which grow along with harvested medicinal plant also develop similar color, odour, and some constituents. Or due to non availability of some particular part of plant, another part of same plant may be used to fulfill the requirement. e.g. in dashmool bharad basti instead of roots of dashmool, Panchang of dashmool is used.

Fig. 13: Dashmool.

1.7 Addition of harmful substances- Harmful substances are also used for adulteration. This is mainly used for liquid type of drugs.

Fig. 14: Limestone.

Fig. 15: Asafetida.

1.8 Adulteration of powders

This is most common type of adulteration. In case of powdered drugs color, texture and density of the powder taken into consideration irrespective of its origin.

Fig. 16: Triphala choorna.

Need for Substitution[4,5,6]

1. **Non-availability of the drug-** Eg:- Substitution for Ashtavarga Dravyas.
2. **Uncertain identity of the drug-** Eg:- for the herb Lakshmana different species such as Arlia quinquefolia, Ipomea sepiaria etc are considered
3. **Cost of the drug-** Eg: - Kumkuma being costly herb is substituted by Kusumbha.
4. **Geographical distribution of the drug-** Eg:- As Rasna (*Plucia lanceolata*) is used in Northern India, while in southern parts *Alpinia galanga* is considered as the source.
5. **The adverse reaction of the drug-** Eg:- Vasa is a well-known Rakta-Pittahara drug, but due to its Abortificiant activity its utility in pregnant women is limited, instead drugs such as Laksha, Ashoka etc are substituted.

DISCUSSION

Adulteration of herbal drugs is not done always intentionally, sometimes adulteration occurs accidently also because of illiteracy of supplier abouttheir spurious supply. Other reasons include confusion in names, non-availability of herbal drugs, and lack of knowledge about authentic plant. Substitution of the herbs is become the need of the time more than 300 ayurvedic herbs becoming red listed. The basic idea of substitution is to achieve similar therapeutic effect as that of original drug. The most essential criteria for substitution is the pharmacological activity rather than morphology or phytoconstituents.

CONCLUSION

Nowadays, *Ayurvedic* pharmacies are using high quality standards using modern techniques and instruments to maintain their quality. Use of authentic drug will give the desired effect in low dose and in short time period. So it is need of the time that all *Ayurvedic* practioners should prepare their medicine by themselves to avoid adulteration and substitution of ASU drugs.

REFERENCES

1. The Drugs and Cosmetics Act and Rule, The Drugs and Cosmetics Act 1940, The Drugs and Cosmetics Rule 1945, Government of India, Ministry of Health and Family Welfare, chapter, 2003; 2: 5.
2. Mitra SK., Kannan R. A Note on Unintentional Adulterations in Ayurvedic Herbs. Ethnobotanical Leaflets, 2007; 11: 11-15
3. the drugs and cosmetics act and Rule, The Drugs and Cosmetics Act 1940, the drugs and cosmetics rule 1945,Government of India, Ministry of health and family welfare, chapter, 2003; 2: 5.
4. Mishra B, Shankar and Vaishya.R (editor) "Bhava Mishra's Bhavaprakasha Choukamba Sanskrit sansthan, Varanasi, UP, 10th Edition, 2002.
5. Billore KV, Yelne M.B, et al "Data Base on Medicinal Plants used in Ayurveda" Vol VII, C.C.R.A.S, New Delhi, 2005.
6. Mukherjee K Pulok "Quality Control of Herbal drugs" Business Horizons, New Delhi. 1st edition, 2002; 113-117.