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RESEARCH OF HERBAL INVENTION FOR BRONCHIAL ASTHMA CAPSULE

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ABSTRACT

Asthma is a chronic or long term lung disease related to shortness of breathing and burning, narrowing of airways. Increasing severity of asthma needs a proper medication. Herbs are used in management of disease since ancient times. Herbal drugs are considered as natural and hence they are considered as a safe treatment. Peppermint is natal to Europebut nowadays it is cultivated all over the world. This study was cast to corroboration of herbal drug usage in Greek tradition medicine to treat asthma.

KEYWORDS: Bronchial asthma, Bronchodilator, Anti-inflammatory, Herbal medicine.

INTRODUCTION

Asthma is a chronic disease which affects the airways and it is also one of the major non communicable disease all over the world. It causes shortness in breathing, difficulty in breathing, chest pain, cough and wheezing. Asthma can causes long period of puffed, tininess in breathing and coughing.

It is a condition in which persons airways become inflamed, narrow and produce extra mucus. It makes difficulty in breathing. Airways are the pipes which hold the air into the lungs.

If the symptoms of asthma are very severe it needs frequent medication. This situation needs medical emergency. It may cause respiratory distress and in some conditions it may cause death. Proportion of asthma is increasing since some decades but the exact symptoms for this is unknown some symptoms of asthma are allergy of some drugs, environmental factors like

dust, ticks inborn propensity which increase asthma called as atopic, family history, respiratory infections for tracks, some other allergens like animal dander, obesity, cigarette smoking is also an cause for asthma. Asthma is classified according to its frequency and symptoms which are a) Expiratory volume in one secondb) Peak expiratory lowrateAsthma starts at the age of 12 years due to the genetic influence and while after 12 years it is more likely due to environmental influence.

In 2016 the Global level of Disease collaboration mention that 420,000 people in the world deathby asthmawas 1000 per day. International mortality statistics for asthma is limited as per countries reporting information about the causes of death. Figure One compares the age-standard mortality rates for asthma among countries reporting asthma separately as per year 2001-2005 and 2011-2015. This figure mention some countries deaths of people, with more than 100. The deaths of people as per age, between Italy (low) and Fiji (high)

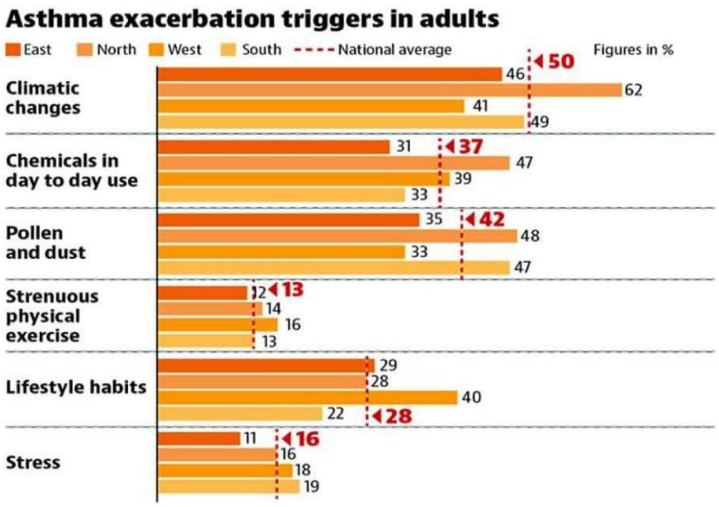

Fig. 1: Pathophysiology.

The main causes of asthma are pollens, mites, nausea, vomiting wheezing, shortness in breathing and certain drugs which triggers asthmatic attacks. The allergens stimulates production of mast cells. upon re- expose to same allergens that results in degranulation of mast cells to release certain inflammatory mediators like histamine, prostaglandin.

After this changes occurs WBC's migrate into the area to engulf. The allergens phagocytic reaction causes release of protein which are lytic agents for cells to promote reduce of inflammation.

1) Bronchitis:- Bronchial tubes become inflamed and narrow in this condition. Lungs

produce more mucus and block the narrow tube. Affected bronchus is narrow and destruct airflow due to inflammation of mucus production.

2) Chronic bronchitis:- this type of bronchitis is related with cigarette smoking and air pollution due to this mucus secretion does not control.

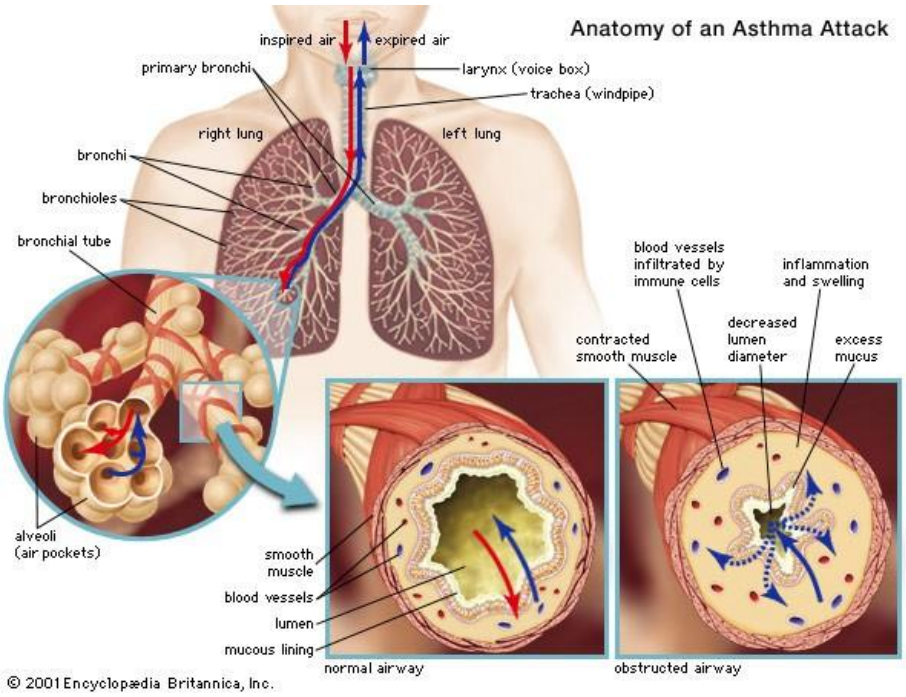

Fig. 2:

Dose

1) Peppermint leaves – 25mg/day
2) Holy basil – 70mg/day
3) Ginger – 2 mg/day
4) Apple – 1gm/day
5) Honey – 25-30 mg/day
6) Turmeric – 300-400 mg/day

Monograph

(1) Peppermint leaves:- Scientific name:-Menthapiperita Synonym :-Menthabalsamea Family :-Lamiaceae

Chemical content:- Not more than or equal to 13 % menthone and not less than 32% and not more than 45% menthol.

Use:- Anti-inflammatory

Fig. 3:

(2) Holy basil :-

Scientific name:-Ocimumsanctum Synonym:-Tulsi

Family:-Lamiaceae

Chemical content:- 0.40% w/w eugenol Use :- Anti- asthmatic or expectorant

Fig. 4:

Fig. 5:

(3) Ginger

Scientific name :- Synonym :-Indiompodophylum Family :-Zingiberaceae

Chemical content :- 1-4% volatile oil, 60-40% starch, 10% fat, 5% fibre Use :- cough carminative stimulant

(4) Turmeric

Scientific name:-Curcumalonga

Synonym:- Yellow ginger Family:- Zingiberaceae Chemical content:- 3-6% polyphenolic compound Use:-Anti- inflammatory

Fig. 6:

5) Apple

Scientific name:-Malusdomestica Synonym:-Malus

Family:-Malaceae

Chemical content:- Sugar between 9.53 and 12.34%, vitamin A ,B1 and B2.Use :-Increases lung function.

Fig. 7:

(6) Honey

Scientific name:-Apismallifera

Synonym:- Nectar

Fig. 8:

Family:-Apidae

Chemical content:- Glucose sugar, Fructose Use :-Cough suppresent

Method

Extraction method

Apple (1 gm), ginger (1 gm) and turmeric (500 mg) and extracted with 200 ml of ethanol and added (1 gm) peppermint leaves and holybasil(1 gm) and honey (1 gm) and for 15 min extracted. Peppermint leaf and holybasilleaf are extracted.

Procedure:- Fresh peppermint leaves and holybasilwas collected 1 gm. /kg bdwt/day and then ground with mortar and pestle. Finally only the leaf extract with 10 ml. distilled water and strirred for a homogeneous mixture Kept six hours and then filtered with silk cloth added on soxhlet extraction method.

Detailed phytochemical examination were carried out for 6 ingredients as per standard method-

a) Test for Alkaloids – To the extract, diluted hydrochloric acid was added. Shaken well and filtered with the filtrate the following test were performed.

1) Mayer's reagent test – To 30 ml. of filtrate, few drops of Mayer's reagent were added along sides of the tube formation of creamy precipitation indicates the presence of alkaloids.

b) Tests for carbohydrates –

1) Molisch's test – 2 ml. of aqueous extract was treated with 2 drops of alcoholic napthol solution in test tube then 1 ml. conc. Sulphuric acid was added carefully along the side of test tube although formation of violet ring at the junction indicates the presence of carbohydrates

Granulation method

Dried powder was taken of peppermint leaves. holy basil, ginger, turmeric and apple and then mixed in mortar and pestle. Then compressed into hard gelatin capsule to make slug mix carefully. Then added honey and gum for the purpose of binding. Granulation was done with a particular diameter.

Granule particle size – 0.2 - 0.4 mm

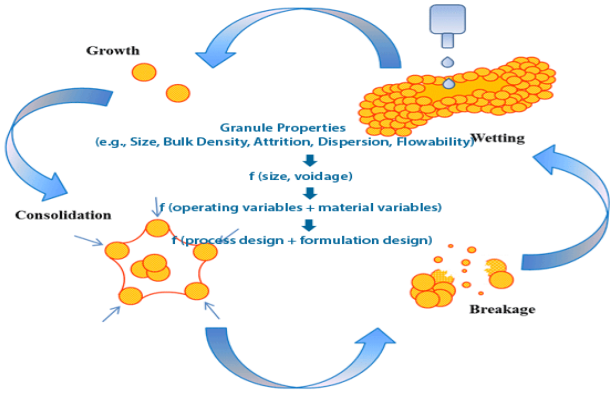

Fig: 9.

Evaluation parameters for granulation

Evaluation of properties of granules

1) Angle of repose

Determine using funnel method. The blend was poured in funnel as it can raise vertically at maximum concentration of height (h). Then radius of heap measured.

2) Bulk density:- Measuring cylinder was tapped for taps. The less volume (vt) occupaid in the cylinder and weight (M) of blend measured . Then tapped density is calculated.

Pt = M /vt

3) Hausner'sRatio:-Haunser's ratio is used to measure index of powder flow ; it is calculated by: Hausner's ratio = pt/pb

Pt = tapped density; pb = untapped bulk density.

Test for lungs

1) Exhaled nitric oxide test

It is a quick and easy way to measure inflammtion in the bronchial tubes of the lungs. During inflammation higher than normal levels of nitric oxide are released from epithelial cells of the bronchial walls. The concentration of the nitrous oxide in exhaled breath or fractinal exhale nitrous oxide can help to identify airway inflammation and thereby support a diagnosis of asthma when other objective evidence is lacking.

2) Spirometry

It is simple breathing test which is of great value of measuring how much bronchial tubes narrowed.

Spirometermeasures that amount and speed flow of the air that can be inhaled and exhaled giving an indication of how well lungs are performing. It is often used to determine the amount of airways obstruction

This enables to make decision about lungs condition and to plan the best treatent fpr asthma.

Formulation

Gelatin is the component which is used in very large scale to compose hard gelatin capsule in very large scale to compose hard gelatin capsule. It also may contains plasticizer, colorant, opacifying agent and preservatives to improve their performance and 12 – 16% water is added, water content depends on storage condition.

Step: 1: A concentrated solution is prepared of gelatin. Gelatin is dissolved in deminarilised water heated to 60-70 degree celcius and turmeric is added as a coloring agent.

Step: 2- Dip –coating of the gelatin solution on metal pins. Rows of pins arranged so caps forms and as well as body forms on the opposite side.

Step: 3 – Dip- coated pins are rotated.

Step: 4 – Drying of gelatin.

Step: 5 – After the drying of gelatin capsule is stripped and trimmed to a proper llenght. Step:

6 –Then the capsule shell is joined.

Step: 7 – Capsule shell are printed in two different coloursti increase its identification.

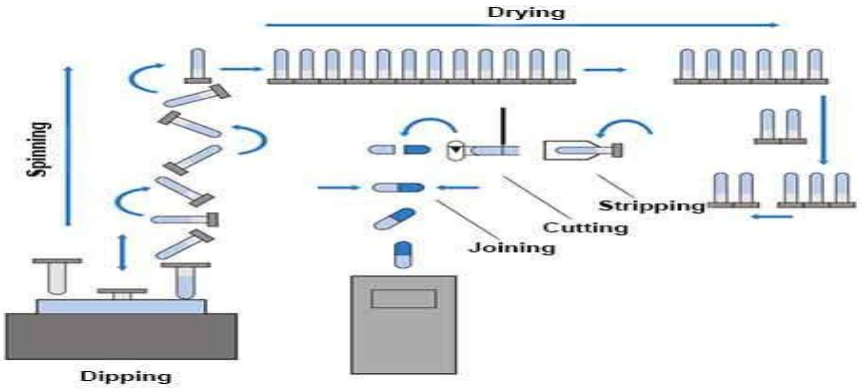

Fig. 10:

Evaluation of hard gelatin capsule

Disintegration Time

Capsules are added in tubes and suspended in water and temp. was maintained. and this was operated for 60 monutes.

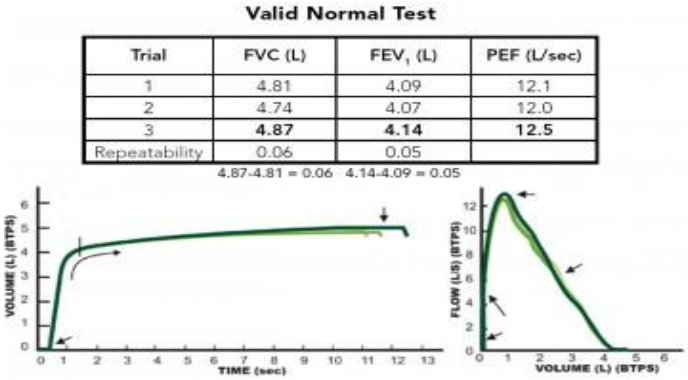

Fig. 11:

CONCLUSION

Trials of herbal treatment should continue though at coarse of that results into still or effect on area of asthma. Treatment taken at night is more better to control the asthma. In this study peppermint and other herbal drugs are successfully use to treat the asthma.

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