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The study shows that the concept of ancient Unani scholars about asthma is true and scientific.

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# Evaluation of Therapeutic Effect of a Polyherbal Formulation in Patients of Asthma with Different kind of Temperament

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## I. INTRODUCTION

Asthma is not a new disease. Mankind knows it since last 3500 years, where asthma like symptoms were recorded in an Egyptian Manuscript called Eberus Paperus. At present asthma has spread globally. The affected people belong to various age groups, but children and elders are more prone. An increasing prevalence and severity of asthma has been reported worldwide.<sup>[1]</sup> Asthma affects 4% of the total world population.<sup>[2]</sup> In 2003; 2.8 million people had been diagnosed with asthma in USA, and 11 million people experienced an attack of asthma in the previous year.<sup>[3]</sup> In 2005; 32.4 million people had been diagnosed with asthma. About 4000- 5000 people die each year in America alone.<sup>[3]</sup> Prevalence of asthma in Wales is among the highest in the World, with 260,000 people living with Asthma.<sup>[4]</sup>

In India, recent report shows wide variation (4-19 %) in the prevalence of asthma in School going children from different geographic areas of India.<sup>[5]</sup> There has been an increase in mortality as well, particularly in younger age groups.<sup>[6]</sup> In the city of Bangalore the prevalence of asthma in 1979 and 1999 was 9 % and

29.5 % respectively.<sup>[7]</sup> In Lucknow, prevalence of asthma is 2.3 % and 3.3 % in the children of age groups, 6-7 and 13- 14 years, respectively.<sup>[8]</sup> In urban Delhi, prevalence of asthma in children is 11.6 %.<sup>[9]</sup> Prevalence of asthma in rural children from Ludhiana<sup>[10]</sup> was 2.6 % and from Punjab<sup>[11]</sup> was 1%.

## II. UNANI CONCEPT OF ASTHMA

Asthma is known as Rabu, Buhar, Zeeq-un-nafas and Intesabun-nafas.<sup>[12-14]</sup> Asthma is defined in the books of almost every renowned unani scholars like Hippocrates (460 BC), Galen/ Jalinoos (130-200 AD), Rabban Tabri (810-875 AD), Razi (860- 932 AD), Ibn-sina (980-1037), and Ismail Jurjani (death 1140 AD). They believed that asthma is caused by Thick Phlegm (Ghaleez khilt or ghaleez Balgham) which is adhered on the bronchial mucosa to develop narrowing. They described that due to narrowing of bronchial lumen, air becomes incapable to enter into the lungs during inspiration, and to fulfill the deficit of air (O<sub>2</sub>) the subject is compelled to breathe rapidly. The rapidity of the breathing depends upon the severity of the disease.<sup>[15-19]</sup> Some Unani Scholars like, Majoosi, Jurjani and Rabban Tabri, described that asthma is caused by Barid and Raqeeq khilt (cold and dilute fluid). They believed that such fluid develops more severe form of breathlessness.<sup>[18, 20, 21]</sup> Tabri AABM, stated that asthma is a name of thick fluid (Ghaleez Balgham) which is adhered on the inner layer of bronchioles and develops narrowing of the airways, resulting in hypoventilation of the lungs and ultimately breathlessness.<sup>[22]</sup> Hussain MA, stated in his book, Moaleja-e-Nafissi that asthma is caused by concentrated and unhealthy cold fluids (Ghaliz wa barid ratoobat). He emphasized that fluids may be Balgham or sauda or both.<sup>[23]</sup> The most scientific description regarding to etiology of asthma was given by Ali bin Abbas Majoosi(930- 994) and stated that asthma is caused by bronchospasm.<sup>[18]</sup>

In Unani system of medicine treatment of the diseases of known etiology is based on administration of drugs having actions contrary to etiological changes i.e. known as Ilaj-Bil- Zid. According to this principal of treatment, unani scholars have designed various formulations comprising of drugs with hot and dry temperament for asthma which temperament is cold and moist.

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### III. MATERIAL AND METHODS

Twenty five patients of asthma were selected from the OPD of Moalejat, Ajmal khan Tibbia College Hospital during 2000-2003. Patients with history of atopic, episodic asthma and additional allergic conditions such as rhinitis, dermatitis were included in this study. Patients having chronic bronchitis, bronchiectasis, tuberculosis, emphysema, pneumonia with asthma, pregnancy, patients with oxygen therapy receiving corticosteroids and patients with cor-pulmonale were not included in the study. Peak expiratory flow rate (PEFR) was recorded under dynamic condition before the start of the Study and at an interval of 2 weeks for six weeks. PEFR was measured using Vitilograph peak flow meter in sitting position. The data were tabulated and statistically analysed by applying paired t-test for the observations recorded during the study for evaluation of the significance of differences. For data analysis SPSS statistical software was used.

Determination of temperament is one of the most important aspects of Unani System of Medicine.

Each subject possesses a specific temperament. Occurrence of disease and effect of drugs used for treatment depend upon temperament of the patient. Temperament of the 25 patients was assessed on the basis of Proforma given in *table no. 1*.<sup>[24]</sup>

In present study, Arusa (*Adhatoda vasica* Nees.), Zoofa (*Hyssopus officinalis* Linn.) and Aslus-soos (*Glycyrrhiza glabra* Linn.) were given @ 6 gram each 12 hourly in the form of decoction. *Adhatoda vasica* Nees., is a potent bronchodilator due to presence of vasicine and vasicinone alkaloids.<sup>[25-30]</sup> It has anti-histaminic activity also and the leaves of Arusa are extensively used in whopping cough, bronchitis, asthma and urticaria.<sup>[31-33]</sup> *Glycyrrhiza glabra* Linn., has strong anti-histaminic, bronchodilating and expectorant properties.<sup>[32-34]</sup> *Hyssopus officinalis* Linn., is an excellent anti-inflammatory and expectorating agent.<sup>[35,36]</sup> Temperament of Arusa (*Adhatoda vasica* Nees), Aslus-soos (*Glycyrrhiza glabra* Linn.) and Zoofa (*Hyssopus officinalis* Linn.) is Hot and Dry.<sup>[37,38]</sup>

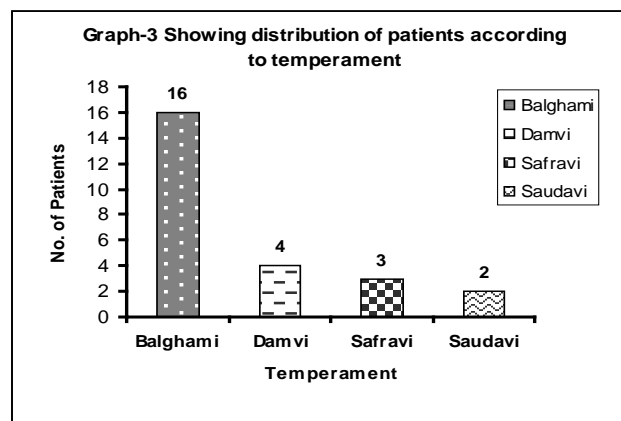
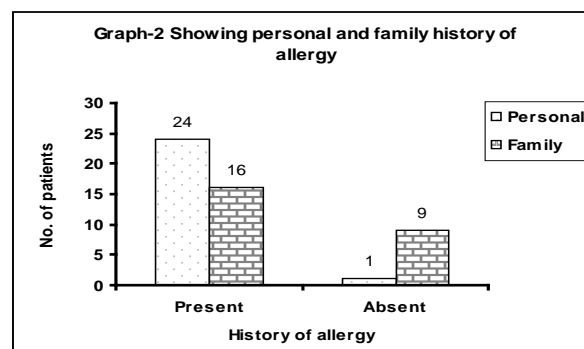
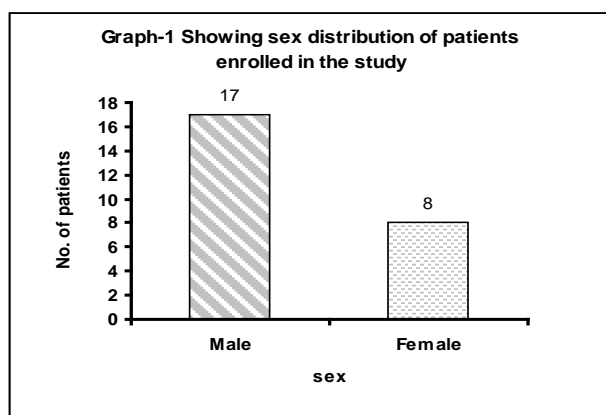
*Table 1* : Showing parameters for determination of temperament

Parameters for temperament	Damvi (Hot & Moist)	Balghami (Cold & Moist)	Safravi (Hot & Dry)	Saudavi (Cold & Dry)
1. Body appearance	Muscular, Robust veins are prominent	Lose musculature, fatty/obese look excess fat ,not prominent	Not thick, average/less musculature	Thin, emaciated weak musculature
2. Feel of body	Tough glazed & hot	Flabby ,soft loose & cold	Dry hard and hot	Hard & rough and Cold
3. Complexion of body	Brown, Reddish	Dusky	Pale	Dark, Purple
4. Type & colour of hair on the body	Thick dense but slow growth, black & Glazed	Thin & less but slow growth Brownish thick	Thick & dense but fast growth thin black and curly	Thick & scanty but fast growth brownish & thin
5. pulse	Full & strong	Slow, feeble, sluggish	Rapid regular	Wide & soft
6. Functions of the body	Reaction time fast	Reaction time slow, Slow movement	Excessive movement	Sense of anxiety, wake fullness
7. Mental alertness.	Enthusiastic and prepared	Dull, sluggish	Short tempered	Deep thinking
8. Behavior	Angry soon	Cool, calm	Irritative	Different from fellow beings
9. Thirst.	Normal	Less	Increase	False
10. Appetite	Normal	Less	Increase	Decrease
11. Sleep	Sound	Excessive	Less	Less & Disturbed
12. Urine colour	Conc. & reddish	Colourless white	Dilute pale	Smoky dark
13. Dreams	Occasional red article	White article, lake, water	Fire, Red & yellow articles	Fearful
14. Sexual desire.	Excessive but controlled	Occasional but controlled	Uncontrolled	False & confused
15. Additional.	Epistaxis, like cold climate	Like hot climate	Dry & rough tongue, nauseating feeling, likes cold climate	Heart burn, dark circle around eyes likes hot climate and things

#### IV. RESULTS

In present study, 25 patients were selected. Their mean age (year) was 30 (SD= 10) and mean weight (kg) was 49 (SD =12). Out of 25 patients, there were 17 (68 %) male and 8 (32 %) female (*Graph- 1*). Out of 25 patients, 24 (96 %) patients had positive history of allergy and only 16 (64 %) patient had positive family history of asthma (*Graph-2*). Patients were also categorized according to temperament. The 25 patients who were categorized in this manner included Balghami (Phlegmatic) 16 (64 %), Damvi (Sanguine) 4 (16 %), safravi (Bilious) 3 (12 %) and of Saudavi (Melancholic) 2 (8 %) temperaments (*Graph- 3*).

During the follow ups PEFR was performed and change in parameter was assessed. Increase in the value of PEFR on 15<sup>th</sup> day, 30<sup>th</sup> day, and 45<sup>th</sup> day as compared to 0 day and symptomatic relief in the condition of patient was taken as improvement.



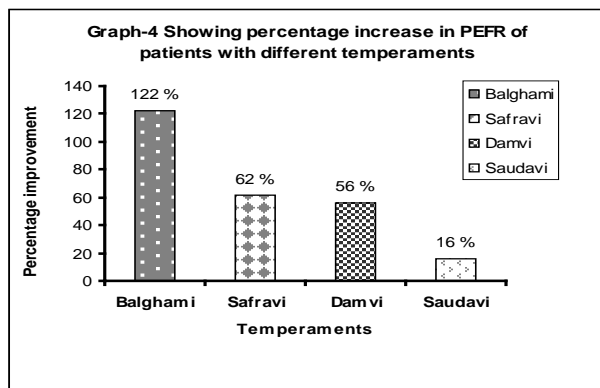
**Table 2 :** Effect of Drugs on Peak Expiratory Flow Rate (lt/min) in whole study and in patients with different temperaments

Effect on	0-Day	15th Day	30th Day	45th Day	t-value and p-value
Whole study	205 ± 73	257 ± 79	309 ± 76	378 ± 70	t=15.1 p=0.000
Balghami	181± 69	236 ± 76	300 ± 75	380 ± 69	t=23.1 p=0.000
Damvi	250 ± 61	297 ± 68	350 ± 63	391 ± 52	t=6.6 p=0.007
Safravi	257 ± 84	332 ± 84	363 ± 55	418 ± 51	t= 8.4 p=0.14
Saudavi	235 ±71	245 ± 64	215 ± 35	268 ± 53	t= 3 p= 0.02

To assess the percent increase in PEFR, first percent increase was calculated for individual patients on 15<sup>th</sup>, 30<sup>th</sup> and 45<sup>th</sup> day, then mean percent increase was calculated by dividing the sum by number of patients on 15<sup>th</sup>, 30<sup>th</sup> and 45<sup>th</sup> day respectively. It was found that maximum increase in PEFR on 45<sup>th</sup> day in all patients was 85 %. When paired t-test was applied to PEFR recorded during the study. It was found to be highly significant (p= 0.000) throughout.

Percent increase in PEFR according to temperament was also calculated. It was found that maximum percent improvement in PEFR was in Balghami (Phlegmatic) temperament i.e. 122 % and lowest was in Saudavi (Melancholic) temperament i.e. 16 % as shown in *graph 4*. When paired t-test was applied to PEFR according to temperament, it was found to be highly significant (p=0.000) in Balghami

(Phlegmatic), significant in Damvi (Sanguine, P=0.007) and insignificant in Safravi (Bilious, P=0.14) and saudavi (Melancholic, p=0.20) temperaments (table-2).



Patients were also assessed for any adverse effect of test drugs. For that purpose, liver function test, renal function test and heamoglobin percentage were measured before and after the study. After study it was found that there was no significant change in these parameters which indicates that the test drugs are safe.

### V. DISCUSSION

Asthma is a global phenomenon. In children even though genetic predisposition is one of the factors responsible for increased prevalence, urbanization, air

pollution and environmental tobacco smoke contribute more significantly. Our results show significant improvement in PEFR as a whole and in patients with different temperament. As the temperament classification is not scientifically proved, it is difficult to determine accurate temperament of subjects. At present, it is also difficult to explain pharmacological intervention leading to unequal improvement in illness of patients with different temperament. The medicinal plants, used in this study, have hot and dry temperament of first degree except Zoofa (*H. officinalis* Linn.) which has third degree hot and dry temperament. According to basic principal of management of illness in Unani System of Medicine, only patients with Balghami (Phlegmatic) temperament should respond well. It is because; their temperament is cold and moist, which is similar to the temperament of illness and absolutely contrary to the temperament of drugs.

Our study also indicates that certain medicinal plants used in unani medicine could be better alternative of conventional drugs. As well as significant improvement in PEFR, present treatment was also associated with significant improvement in anxiety, insomnia, frequency of dyspnoea, rate of respiration and rhonchi (tab-3). So the quality of life also shows improvement with present treatment.

Table 3 : Showing improvement in different parameters

Parameters	Before Treatment	After Treatment	Percentage Improvement
	Present in No. of Patients/Frequency	Present in No. of Patients/Frequency	
1. Anxiety	21	04	81 %
2. Rhonchi	25	22	88 %
3. Insomnia	18	6	67 %
4. Rate of respiration	25 ± 3	19 ± 01	24 %
5. Frequency of dyspnoea	6 ± 3	1 ± 1	83 %

### VI. CONCLUSION

The study concludes that polyherbal formulation used in present study, exhibits significant effect on patients with asthma and may be a better alternative to present conventional drugs used for the treatment of all kinds of asthma. The study also concludes that, to establish scientific correlation between temperaments of the disease the subjects and also that of the drugs, a multidisciplinary clinical trial should be initiated.

### VII. ACKNOWLEDGEMENT

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