International Journal of Universal Pharmacy and Bio Sciences 11(2): March-April 2022

INTERNATIONAL JOURNAL OF UNIVERSAL PHARMACY AND BIO SCIENCES

IMPACT FACTOR 4.018*

ICV 6.16*

Pharmaceutical Sciences **Research Article……!!!**

EVALUATION OF THE EFFECT OF MAJOON HALAILA (UNANI FORMULATION) IN HEALTH PROMOTION OF ELDERLY PEOPLE (*MASHAIKH*) - A RANDOMIZED PLACEBO CONTROLLED STUDY

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KEYWORDS:

Majoon halaila; elderly; health promotion.

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ABSTRACT

Objectives: To improve the expectancy and quality of life of elderly persons by providing safe and effective Unani formulation, *Majoon halaila.* **Methods:** 40 eligible subjects were randomly assigned into two groups; 30 in test and 10 in control group. Test group was given 10gm *Majoon halaila* orally at bedtime for 2 months. Control group was treated with 10 gm placebo orally at bedtime for 2 months. Effect of the drug was assessed by Appetite score, Weight, Grip strength score, Physical activity score, 6-CIT score on every 15th day and complete haemogram, lipid profile, AIP, LVEF pre and post treatment. **Results:** Strongly Significant increase ($p<0.001$) was observed in Appetite score, Weight, Grip strength score, Physical activity score, Serum HDL, LVEF and suggestive significant increase in Haemoglobin ($p<0.018$), strongly significant decrease ($p<0.001$) was observed in Serum cholesterol, Serum triglycerides, Serum LDL, AIP, ESR, and in 6-CIT Score in test group with respect to control group. Effect on TLC and DLC was statistically insignificant. Safety parameters were within normal range. **Discussion:** On the basis of observations and results it may be concluded that the *Majoon Halaila* is safe and effective in health promotion in *Mashaikh* (elderly).

INTRODUCTION:

Old age is an incurable disease.[1] Ageing can be defined as a progressive constriction of the homeostatic reserve of every organ system.[2] It is a natural process. The rate and extent of this decline of each organ system of the body is influenced by genetic factors, environment, diet and personal habits.[2] The definition of 'old age' has been accepted by most western countries as being ≥ 65 years of age.[3] In Unani classical literature also, old age (Mashaikh) is considered as being ≥ 60 years of age.[4]

Old age is seen to begin at the point when active contribution is no longer possible.[3] The elderly population (aged 60 years or above) in India accounted for 7.4% of the total population in 2001, 8.6% (104 million; 53 million females and 51 million males) in 2011 and has been projected to increase to 19% by the year 2050. [5,6]

In India, the elderly people suffer from dual medical problems, i.e. both communicable as well as non-communicable diseases. It is estimated that one out of two elderly in India suffers from at least one chronic disease which requires life-long medication. This is further compounded by impairment of special sensory functions like vision and hearing. A deterioration in immunity as well as change in the psychology due to age leads to an increased burden of communicable diseases in the elderly. [7,8]

It is uncertain as to why we age. Despite being a universal phenomenon, the exact mechanism or sequence of events are not yet definitively known. Frequently described biochemical markers of ageing include increase in chromosome structural abnormalities, increase in DNA cross-linking, decrease in DNA methylation, loss of DNA telomeric sequences, decline in gene expression, deterioration of mitochondrial structure, increase in post-translational changes in protein structure such as cross linking, glycation, deamidation and oxidation and intra cellular accumulation of metabolic products. [9]

Over the years, scientific researchers have put forth several theories of aging that show a common modality. These modern aging theories generally fall into two camps: structural damage theories and programmed obsolescence theories. [10,11]

Structural damage theories are concerned with the molecular damage that accumulates inside cells over time. Programmed obsolescence theories engage the concept that aging and death are the inevitable consequence of the workings of an internal biological clock that is programmed at conception. [11,12,13]

In *sin —al — shaikhookhat* (old age), the quantity of *ratoobat ghariziyah* required for the preservation of *hararate ghariziyah* and to continue the bodily normal metabolism is super added with and dominated by *ratoobat gharibah ballah* (abnormal metabolic products). In this period, deterioration in the powers and faculties of the body is marked. *Ratoobat ghariziyah* and *hararat ghariziyah* are markedly reduced. This changes the *mizaj* of the elderly individuals to relatively *Barid Yabis*. [14,15]

Unani physicians described three causative factors for ageing

- Coldness and dryness of temperament that keeps on increasing with age whereas hararat and rutoobat is essential for life.
- Weakness of hararat e ghareeziah i.e. weakness of innate heat of body
- Weakness of powers due to which different organs of body gets weakened and diseases occur.

Considering these factors, the regimens and medicines that increase the innate heat and strengthen the faculties of the body must be used in order to maintain equilibrium in humours and to delay ageing or prolong life. [16]

Majoon Halaila is polypharmaceutical preparation of Unani System of Medicine given to delay the ageing process and to prevent early ageing such as greying of hair, decreased body strength, decreased memory power, weakness of heart etc. *Majoon Halaila* is reported to be cardiac tonic [17,18] stomachic [18] and cephalic tonic [17,18] laxative [17,18].

The ingredients of *Majoon Halaila* as given in Qarabadeen Azam are; Halaila siyah (*Terminalia chebula,)* Balaila *(Terminalia belerica*), Kundur (*Boswellia serrata),* Tabasheer safaid (*Bambusa arundinacea*), Sandal safaid (*Santalum album),* Tukhm e kasni (*Cichorium intybus),* Filfil siyah (*Piper nigrum*), Zanjabeel (*Zingiber officinale*), Gul e surkh (*Rosa damascene),* Waj (*Acorus calamus*) and Qand safed(sugar). [19]

MATERIALS AND METHODS

A randomized placebo controlled trial was conducted at National Institute of Unani medicine hospital (NIUM) between Mar 2018 and Jan 2019 to evaluate the efficacy of *Majoon Halaila* in health promotion of elderly people. Institutional Ethics Committee for Biomedical Research of NIUM approved the protocol on 18th May 2017 vide no. NIUM/IEC/2016-17/018/TST/03. This study is registered with clinical trial registration of India vide CTRI/2018/02/012082.

An informed consent sheet was provided to the persons fulfilling the inclusion criteria with details regarding the nature of the study, the drug to be used, method of treatment etc. If they agreed, they were asked to sign the informed consent form. Patients of ≥ 60 years of age, of either sex, with H/o weight loss, Frequency of infection, Slow walking/gait speed and with stable general condition were included in the study.

Patients below the age of 60 years with uncontrolled Diabetes mellitus, Hypertension, COPD, Ischemic Heart Disease or other chronic diseases like cancer & AIDS, unstable cardiac or renal disease were not included in the study.

Selected subjects were allocated into test group and control group by using computer generated randomization table. During the selection procedure, complete history including general physical and systemic examination was carried out and recorded on a prescribed proforma which was designed

according to the objectives of the study. The patients were enquired about their name, age, sex, marital status, address, occupation, education, diet, religion and socio-economic status. For socio-economic status, patients were enquired about their monthly income, education and occupation and were graded into different socio-economic strata by using Kuppuswamy's Socioeconomic Status Scale modified in Jan 2018. All the subjects were interrogated about their chief complaints and duration of suffering in detail especially about age related problems like weight loss, loss of appetite, recurrent infections, gait abnormality, age related dementia, fatigue and general weakness. Dietary habits, type of diet, smoking habits, Alcohol, pan chewing etc were enquired in personal history. After history, general and physical examination was done with special emphasis on pulse, blood pressure, temperature, respiratory rate, respiratory distress with simple activities, built, clubbing of finger, cyanosis, pallor, oedema, lymphadenopathy to look for involvement of any other serious illness.

A careful systemic examination of cardiovascular system, respiratory system, gastro intestinal system, renal system and nervous system was also done to look for any findings of other serious illness. Blood samples were taken for required investigations.

SAMPLE SIZE ESTIMATION

Sample size was calculated by the formula $N = (r+1) (Z_{\alpha/2} + Z_{1-\beta})^2 \sigma^2 / rd^2$ Where $r = n_1/n_2$ is the ratio of sample size required for two groups, it was kept as 3 for the sample size distribution in two groups as 3 : 1, Zα is the normal deviate at α level of significance (Z_α is 1.96 for 5 % level of significance) $Z_{1-\beta}$ is the normal deviate at 1-β % power with β % of type 2 error (0.84 at 80 % statistical power) σ and d are the pooled standard deviation and difference of means of two groups .

Follow up

Two months study was divided into four visits of follow up, which were made at an interval of 15 days. Concomitant treatment was not allowed during treatment in both groups.

Efficacy assessment

Effect of the drug in the test and control groups was assessed by assessment of Appetite score, Weight, Grip strength score, Physical activity score and 6-CIT score on every 15th day and complete haemogram, lipid profile, AIP, LVEF pre and post treatment.

In this study, Council of Nutrition appetite questionnaire (CNAQ) was used to assess the appetite stimulating effect of our test formulation. Body weight was assessed to the nearest 0.1 kg without shoes and in light clothing. Grip strength was assessed at every follow up by hand held dynamometer. For the assessment of physical activity, Katz index of Independence in Activities of Daily Living was used. Memory status of the elderly subjects was assessed by administration of 6-Cognitive impairment test score at every follow up.

AIP (Atherogenic Index of Plasma): Atherogenic index of plasma (AIP) is a logarithmically transformed ratio of molar concentrations of triglycerides to HDL-cholesterol. It is suggested that AIP values of -0.3 to 0.1 are associated with low CV risk, 0.1 to 0.24 with medium and AIP above 0.24 is associated with high CV risk.

LVEF (Left ventricular ejection fraction): It is the fraction of blood ejected from left ventricle of the heart with each heartbeat. It is calculated by dividing the stroke volume by the end-diastolic volume, and is an inherent volumetric measure of the pumping efficiency of the heart.

Safety assessment

Safety assessment of treatment was done on the Clinical assessment at every visit of follow up and Bio chemical assessment viz; LFT, RFT and Fasting blood sugar before and after intervention.

Statistical analysis

Descriptive and inferential statistical analysis has been carried out in the present study. Results on continuous measurements are presented on Mean ± SD (Min-Max) and results on categorical measurements are presented in Number (%). Significance is assessed at 5 % level of significance.

Significant figures

+ Suggestive significance (P value: $0.05<P<0.10$)

* Moderately significant (P value: $0.01<P \leq 0.05$)

** Strongly significant (P value: $P \leq 0.01$)

Statistical software: The Statistical software namely SPSS 18.0, and R environment ver.3.2.2 were used for the analysis of the data and Microsoft word and Excel have been used to generate graphs, tables etc**.**

RESULTS AND DISCUSSION

In present study, maximum number of subjects 60.0% (24) was in the age group of 60-65 years as compared to 37.5% (15) in 65-70 years and 2.5% (1) in 70-75 years.

Table 1: Demographic characteristics of participants included in the study

Demographic data		No. of Patients (n=40)	Percentage (%)
Age group	60-65 65-70 70-75	24 15 1	60 37.5 2.5
Gender	Male Female	26 14	65 35
Religion	Hindu Islam	26 14	65 35
Marital status	Married Unmarried	40 0	100 0
Diet	Mixed Vegetarian	34 6	85 15
Socioeconomic status	Lower Lower middle Upper lower Upper middle	1 11 11 17	2.5 27.5 27.5 42.5
Occupation	Skilled Semiskilled Unskilled Unemployed	5 2 5 28	12.5 5 12.5 70
BMI	<18.5 18.5 – 25 25 – 30 >30	3 20 15 2	7.5 50 37.5 5
Physical activity	Heavy Moderate Sedentary	4 5 31	10 12.5 77.5

EFFICACY ASSESSMENT

Improvement in appetite score in test group might be due to *mushtahi, muqawwi meda, muqawwi jigar* and *hazim* properties of all constituents of *Majoone halaila* ie. *Halaila* [20,21] *Balaila* [20,22], *Kundur* [20,23], *Tabasheer* [24], *Sandal* [25], *Tukhm e Kasni* [20.], *Filfil Siyah* [26], *Zanjabeel*[27], *Gul e Surkh* [26,] and *Waj* [20,25]documented in Unani literature.

Researchers have documented the hepatoprotective activity of *Halaila* [28], *Balaila* [29.], *Kundur* [30], *Sandal* [31], *Tukhm e Kasni* [32], *Filfil Siyah* [33], *Zanjabeel* [34], *Waj* [35]; gastroprotective effect of *Halaila* [36], *Balaila* [37.], *Kundur* [38], *Sandal* [39.] *Zanjabeel* [40] digestive activity of *Filfil siyah* [41.42] and *Zanjabeel*[43]. These studies support appetite stimulant and digestive effect of some ingredients of *Majoone halaila*.

Table 2: Efficacy parameters at every follow up

Variables	Appetite score		Weight (kg)		Grip Strength score	
	Test Group	Control Group	Test Group	Control Group	Test Group.	Control Group
0day	19.80±3.13	20.80±2.30	62.87±11.53	60.20±7.33	15.45±3.22	14.82±2.73
15th day	22.17±3.00	21.40±1.83	63.40±11.58	59.80±7.39	18.29±3.19	15.62±3.28
30th day	24.27±2.78	21.20±1.98	64.13±11.53	59.70±7.36	21.97±4.08	15.61±3.46
45th day	25.90±2.78	21.00±2.40	64.43±11.69	59.60±7.50	25.35±4.57	14.99±2.74
60th day	26.47±2.78	21.30±2.05	64.97±11.81	59.50±7.26	29.73±5.59	15.24±2.28
Difference						
0day-15th day	2.367	0.600	0.533	-0.400	2.835	0.800
0day-30th day	4.467	0.400	1.267	-0.500	6.518	0.790
0day-45th day	6.100	0.200	1.567	-0.600	9.900	0.170
0day-60th day	6.667	0.500	2.100	-0.700	14.282	0.420
P value						
0day-15th day	<0.001**	0.193	0.003**	0.168	<0.001**	0.180
0day-30th day	<0.001**	0.103	<0.001**	0.096	<0.001**	0.317
0day-45th day	<0.001**	0.167	<0.001**	0.140	<0.001**	0.119
0day-60th day	<0.001**	0.051+	<0.001**	0.226	<0.001**	0.066+

Variables	Physical Activity Score		6-CIT Score	
	Test Group	Control Group	Test Group	Control Group
0day	5.57±0.77	6.00±0.00	12.10±4.57	12.90±4.18
15th day	5.70±0.70	6.00±0.00	9.57±5.48	11.10±4.07
30th day	5.87±0.35	6.00±0.00	8.00±5.23	10.90±4.12
45th day	5.97±0.18	6.00±0.00	6.80±4.91	10.10±3.78
60th day	5.97±0.18	6.00±0.00	6.27±4.64	10.30±3.83
Difference				
0day-15th day	0.133	-	-2.533	-1.800
0day-30th day	0.300	-	-4.100	-2.000
0day-45th day	0.400	-	-5.300	-2.800
0day-60th day	0.400	-	-5.833	-2.600
P value				
0day-15th day	0.043*	-	<0.001**	0.019*
0day-30th day	0.005**	-	<0.001**	0.032*
0day-45th day	0.003**	-	<0.001**	0.001**
0day-60th day	0.003**	-	<0.001**	0.006**

Table 3: Efficacy parameters pre and post treatment
In test group appetite score increases significantly at every follow up.

Variables	Test Group	Control Group	P value
Hb			
Before Treatment	13.66±1.58	13.42±1.23	0.661
After Treatment	14.35±1.20	13.57±1.04	0.073+
Difference	0.690	0.15	
P value	0.018*	0.674	
ESR			
Before Treatment	35.13±20.90	29.40±20.62	0.456
After Treatment	20.33±13.55	20.00±13.85	0.947
Difference	-14.800	-9.400	
P value	<0.001**	0.054+	
Serum Cholesterol			
Before Treatment	167.35±31.48	169.10±15.00	0.867
After Treatment	135.17±18.91	172.80±31.82	<0.001**
Difference	-32.187	3.700	
P value	<0.001**	0.662	
Serum Triglycerides			
Before Treatment	164.57±98.46	130.70±33.81	0.296
After Treatment	118.97±71.83	135.20±38.07	0.501
Difference	-45.603	4.500	
P value	<0.001**	0.379	
LDL			
Before Treatment	96.47±27.01	110.40±14.45	0.129
After Treatment	83.04±21.78	112.90±23.70	0.001**
Difference	-13.427	2.500	
P value	<0.001**	0.715	
HDL			
Before Treatment	36.77±5.12	33.70±6.29	0.129
After Treatment	41.10±6.54	32.50±5.30	0.001**
Difference	4.330	-1.200	
P value	0.001**	0.255	
AIP			
Before Treatment	0.60±0.24	0.58±0.14	0.846
After Treatment	0.42±0.20	0.61±0.15	0.013*
Difference	-0.173	0.026	-
P value	<0.001**	0.290	
LVEF			
Before Treatment	61.00±3.84	62.20±3.46	0.387
After Treatment	66.87±4.00	63.80±2.78	0.031*
Difference	5.867	1.600	-
P value	<0.001**	0.019*	

Barbara et al. (2017) found poor appetite in older adults leads to sub-optimal food intake and resulted in poor nutritional status which leads to impaired functional status and general health. According to their study improvement in appetite improves nutritional status in elderly. Our results are in conformity with this study. Thus it can be concluded that improvement in appetite improves the general nutritional status in elderly and enhance health care outcomes in elderly. [44,45,46.]

In this study, Test group showed increase in body weight. The mean increase in body weight in test group at 60th day was 2.1 kg whereas control group showed decrease in body weight.

The test drug improves the appetite and digestive functions hence the nutritional status which in turn increases the weight in elderly. There is a J shaped curve association with mortality and body weight with increased mortality with low and high BMIs. At a BMI < 22 there is a steady increase in mortality and the combined effect of being underweight and increasing age has a deleterious effect on mortality. [47.]

Grip strength Score

Mean increase in Grip strength Score in test group at 60th day was 14.282 kg. The result showed that Grip strength Score significantly increases at every follow up in test group with respect to base line (p< 0.001**).

The improvement in grip strength may be attributed to the fact that the test drug improves the nutritional status hence the general body strength in elderly. The improvement in nutritional status would be because of *mushtahi, hazim, muqawwi-e-maida, muqawwi-e-jigar* activities of most of the ingredients of *Majoon-e-halaila*. Our results are in line with several scientific studies. Normane et al (2011) explained that increase in muscle function is associated with increased nutritional status. In the elderly increased nutritional intake will result in body compensation in the form of protein increase. Increase in weight and muscle mass can lead to increase in muscle strength. [48,49.]

Physical Activity Score

Results showed that the Physical Activity Score increased significantly at every follow up in test group. Increase in muscle strength correlates with performance of functions (directly proportional). In present study *Majoone Halaila* was found more effective in increasing grip strength so giving strongest reflection in physical activity too.

Haemoglobin

Haemoglobin level tends to decrease with increasing age. In our study, increase in haemoglobin level is moderately significant (p=0.018). It might be due to muallid e dam[81] properties of some of the ingredient of *Majoon Halaila*, improvement in the digestive functions resulting in increase in appetite and food intake, which in turn results in improvement of nutritional status of elderly. Study by Silva CL

(2002) confirmed that low haemoglobin level was associated with lower serum albumin, BMI and more physicians' visits to elderly. [50] Therefore by improving the nutritional status in elderly we can improve their haemoglobin level.

ESR In present study Mean decrease in ESR in test group was 14.800. Decrease in ESR indicates decrease in infection and inflammation. Decrease in ESR might be due to improvement in immune status as *Majoon e halaila* prevent decline in immune status as it slightly increases TLC thus balances destruction and production of WBC because normally TLC decreases with increasing age that is reflected in control group.

TLC and DLC

In test group mean increase in TLC from base line was 52.667. TLC tends to decrease with increasing age. *Majoon halaila* slightly increases TLC; it balances destruction and production of WBC. It may be due to increase in T lymphocytes proliferation in thymus. Control group treated with placebo showed reduction in TLC it might be due to age related changes in cell mediated immunity and oxidative stress. WBCs are the body's best defensive weapon in the fight against germs and disease. So when WBC count drops, it put the person in a vulnerable position without adequate protection and infectious agents becomes much more serious threats. Thus we can conclude that *Majoon Halaila* prevent further decline in immune status of the subject compared to control group. [51]

LIPID PROFILE and AIP

Our study showed *Majoon halaila* signficantly reduced total serum cholesterol ($p<0.001$), serum triglyceride ($p<0.001$), LDL ($p<0.001$), AIP (Atherogenic Index of plasma) ($p<0.001$) and increases HDL ($p<0.001$). Decrease in total serum cholesterol in test group is due to combined effect of proven hypolipidemic activity of many ingredients of *Majoon halaila.* B Ahirwar, AK Singhai, AK Dixit (2003) reported significant hypolipidemic activity of Halaila (Terminalia chebula). [52]

RCR Latha and P Daisy (2010) reported Balaila (*Terminalia belerica*) prevented dyslipidemia.[53] Kundur (B. Serrata)[54.] silicon[55] Santalum album has potential antihyperlipidemic activities.[56.] chlorogenic acid (found in kasni). [57] filfil siyah (piper nigrum). [58,59,60] gul e surkh (R. Damascena). [61,62.]

Srinivasan K (1991) and Sharma I (1996) found oral administration of Zanjabeel (ginger extract) could stimulate the conversion of cholesterol to bile acids thus eliminate the cholesterol from the body. [63.64]

The study showed *Majoon e halaila* significantly increases HDL and reduces AIP. Our study is in line with studies that proved sandal [65] kundur [66] filfil siyah [67,68,69] and waj [70.] increases HDL in animal models. Increase in HDL indicates reduction in lipid peroxidation which is an indicator of atherosclerosis. Scientific studies proved some of the ingredients of Majoon halaila viz; halaila [71.],

balaila [72.], kundur [73.], tabasheer [74.] and ginger [75.] reduced the lipid peroxidation in animal models. It means *Majoon Halaila* prevents lipid peroxidation, thus prevents atherosclerosis. [76,77]

Thus we can conclude that *Majoon Halaila* has cardio-protective effect.

Left Ventricular Ejection Fraction

Mean increase in Left Ventricular Ejection Fraction (%) at 60th day in test group with respect to base line was 5.867. using Student's t test (paired) the mean increase was found to be strongly significant ($p<0.001$).

It may be due to effect of many ingredients of *Majoon e halaila* on contractile force of heart muscles. Kobayashi et al (1987) tested gingerol and found that it produced increase in the degree and rate of longitudinal contraction. Gingerol also increased the contractile force of the left atria. [78]

Chebulanic acid's cardiotonic activity was greater on a hypodynamic heart than a normal one. These studies support our results. Research to evaluate the effect of other ingredients on LVEF must be carried out. Thus it can be concluded that *Majoone Halaila* has cardio-tonic activity. [79,80,81,82,83]

6-CIT Score

Mean decrease in 6-CIT Score in test group at 15th day, 30th day, 45th day and 60th day with respect to 0 day test was strongly significant ($p< 0.001$**)

These results showed that the 6-CIT Score improved at every follow up in test group. Control group also showed significant improvement at 45th day and 60th day. This could be due to short interval between follow ups and on the other hand the subjects remembered questions asked on previous follow up suggests that they had no loss or weakness of memory so subjects with more cognitive loss should be selected for the trial.

Different researches showed neuroprotective and antidepressant activity of many ingredients of *Majoone Halaila*. Rajmohamed MA (2017) found Halaila possesses neuroprotective effect in Alzheimer's disease in animal models and free radical scavenging activity in-vitro cell free antioxidant assays. [84.]

Neilson FH (2014) reported that silica prevented chronic aluminium accumulation and neurodegeneration in brain by forming aluminosilicate. [85] Sandalwood extract. [86] piperine. [87,88] ginger rhizome. [89] acorus calamus. [90]

All these studies confirmed the neuro-protective effect of *Majoon Halaila*.

Age-associated functional losses are due to the accumulation of Reactive oxygen and nitrogen species (RONS).-induced damages. These damages result in cardiovascular diseases, chronic obstructive pulmonary disease, chronic kidney disease, neurodegenerative diseases, cancer, sarcopenia and frailty. Negative effects of RONS are neutralized by antioxidant defenses. [91]

Majoone halaila contains various ingredients which are stomachic, gastroprotective, hepatoprotective, neuroprotective, memory enhancer, cardioprotective, cardiotonic with proven anti oxidant effect viz *Halaila* (Terminalia chebula) [92], *Kundur* (Boswellia serrata) [93].*Tabasheer* (Bambusa arundinacea) [94]., *Sandal* (Santalum album) [95,96,97,98,99,100,101] *Tukhme Kasni* (Cichorium intybus) [102].*Filfil Siyah* (piper nigrum) [103], *Zanjabeel* (Zingiber officinale) [104,105,106], *Waj* (Acorus calamus) [107].Rosa damascena's. [108]

Safety Parameters

Table 4: Safety parameters pre and post treatment

Variables	Test Group	Control Group	P value
SGOT (IU/L)			
• Before Treatment	22.73±10.78	19.14±3.44	0.311
• After Treatment	25.63±9.51	35.6±43.79	0.240
• difference	2.907	16.460	-
• P value	0.074+	0.258	-
SGPT (IU/L)			
• Before Treatment	23.60±10.31	19.06±5.57	0.194
• After Treatment	26.23±8.66	36.90±53.99	0.292
• difference	2.637	17.840	-
• P value	0.063+	0.308	-
SAP			
• Before Treatment	214.02±53.63	188.60±38.05	0.175
• After Treatment	197.13±52.22	213.00±46.26	0.398
• Difference	-16.890	-24.400	-
• P value	0.085+	0.183	-
Total Bilirubin			
• Before Treatment	0.61±0.21	0.59±0.25	0.765
• After Treatment	0.66±0.14	0.70±0.24	0.569
• Difference	0.049	0.109	-
• P value	0.169	0.058+	-
Blood Urea (mg/dl)			
• Before Treatment	29.25±6.92	30.90±7.52	0.527

• After Treatment	30.47±6.36	31.20±6.20	0.752
• Difference	1.213	0.300	-
• P value	0.285	0.910	-
Serum Creatinine (mg/dl)			
• Before Treatment	0.79±0.13	0.86±0.16	0.181
• After Treatment	0.82±0.13	0.83±0.14	0.837
• Difference	0.029	-0.028	-
• P value	0.358	0.700	-
FBS (mg/dl)			
• Before Treatment	95.07±9.97	96.7±8.74	0.647
• After Treatment	91.07±10.34	92.2±8.5	0.756
• difference	-4.000	-4.500	-
• P value	0.047*	0.193	-

In order to determine the adverse effects of the *Majoone Halaila*, safety parameters like RFT (Blood Urea, Serum Creatinine), LFT (SGOT, SGPT, Serum Alkaline phosphatase, Serum bilirubin), Blood sugar fasting were carried out at the baseline and at the end of the study. It was found that all the safety parameters were within the normal range after the completion of the trial. This suggests that the use of *Majoon Halaila* for health promotion in elderly is safe.

The protocol discussion reveals that the overall effect of *Majoon Halaila* in health promotion of elderly people was found to be significant in improving parameters like Appetite score, Weight, Grip strength score, Physical activity score, Haemoglobin, ESR, lipid profiles, Atherogenic Index of Plasma (AIP), Left Ventricular Ejection Fraction (LVEF) and 6-CIT Score. However no significant improvement was observed in parameters like TLC and DLC.

In classical Unani literature *Majoon e halaila* described as stomachic [18] hepatoprotective, gastroprotective, appetite stimulant, digestive, cephalotonic [18] cardiotonic [18] laxative [18], anti ageing. [109,110] It contains 10 ingredients. Their actions reported as *kundur*, *filfil siyah*, *Zanjabeel* and *waj* stimulate innate heat [23,26] which is essential for *Quwa* to perform *afa'al* (functions). *Halaila, balaila, sandal, gule surkh* and *waj* by virtue of their mulattif property [20.111] liquifies the ghaleez madda by their moderate heat. *Tukhme kasni, filfil siyah, zanjabeel,* and *gule surkh* by their *mufatteh sudud*[111.] action break the *akhlate luzuja* in small pieces which can be evacuated from the body. *Tukhme kasni* and *filfil siyah* due to their *mudire bol* [111.]property and *halaila, balaila, zanjabeel* and *gule surkh* by their laxative

action [112.] evacuate phlegm and atrabilious humour through bowel and bladder. *Halaila, balaila, sandal, filfil siyah, zanjabeel* and *waj* by their *mushtahi* property [111.] increases appetite. *Halaila, kundur, tabasheer, sandal, tukhme kasni, filfil siyah, zanjabeel, gule surkh*, and *waj* due to their *muqawwie me'da* [25,26] *muqawwie jigar*[25] and digestive action [111] strengthen and improve the *Quwwate Tabiya*, thereby provide the substitute of *tahleel. Halaila, kundur, tabasheer, sandal, tukhme kasni* and *gule surkh* by their *mufarrah wa muqawwie qalb* [111] action provide strength to the *quwwate haiwania. Halaila, balaila, kundur, sandal, filfil siyah, zanjabeel* and *waj* by their *muqawwie dimagh* [112.] property and *muqawwie hafiza* [25,26,111] property strengthen *quwwate nafsania*. From the above discussion we can conclude that *Majoon halaila* stimulate innate heat, evacuate *fazil* and superflous matter, strengthen *quwwate tabiya*, *haiwania* and *nafsania* thereby regulate/improve the functions of the body thus increase life expectancy and improve quality of life.

Thus we can conclude that *Majoon halaila* is safe and effective antiaging formulation and has encouraging potential in the health promotion of *Mashaikh.*

LIMITATIONS

Limitations of the study include small sample size, short duration of study, inclusion of maximum subjects having normal physical activity score, cognition scale containing easy questions and shorter follow up. Thus it is recommended that the clinical trial should be done on larger sample size and for longer study duration with appropriate follow up days.

CONCLUSION

The study revealed that the test drug appeared to be efficacious in the geriatric problems and exhibited significant effects in improvement of appetite score, weight, grip strength score, physical activity score and 6-CIT score. Hence it can be said that this intervention can have a major impact on the patient and family's well being and on the cost of long term care. No adverse effects or toxicity has been reported during or after the trial. Thus, it can be stated that the test drug is safe and effective in elderly to promote their health and can be used prophylactically to counter the effects of ageing.

ACKNOWLEDGEMENT

The author is thankful to the authorities of National Institute of Unani Medicine, Bangalore for providing financial assistance and ample facilities for clinical trial, and also thankful to the patients who participated in the study. Author also thanks Dr. K.P Suresh (Biostatician) for the statistical analysis of data.

CONFLICTS OF INTEREST

The authors declare no conflicts of interest.

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