

1 Studies on Majoon Aarad Khurma and its Granules Prepared
2 with Stevia, with Reference to the Standardization and Toxicity
3 Evaluation

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6

7 **Abstract**

8 There is a huge treasure of Compound drugs described in various pharmacopoeias that have
9 developed as a result of painstaking and cumulative efforts of elite scholars of Unani medicine.
10 However, there has always been scope for inclusion of new compound drugs whose safety and
11 efficacy has been proved scientifically. Majoon Aarad Khurma which is widely used as an
12 effective aphrodisiac is prepared with sugar as base. It is contraindicated in diabetic patients
13 who are suffering from sexual dysfunctions. Preparation of medicines which are sugar free
14 should be innovated or designed to meet the demand of the diabetic patients. Therefore the
15 present study is aimed to develop granules of Majoon Aarad Khurma with natural sweetening
16 agent Stevia rebaudiana. Granules are more convenient and comfortable in usage and
17 dispensing. Granules uphold the same principles and maintain the same characteristics as
18 traditional dosage forms, granules are safe, light, efficacious, stable and quality controlled.

19

20 **Index terms**— aphrodisiac, pharmacopoeias, diabetes, sexual dysfunction, granules, stevia rebaudiana,
21 ccrum, sweetening agent.

22 Studies on Majoon Aarad Khurma and its Granules Prepared with Stevia, with Reference to the Standardiza-
23 tion and Toxicity Evaluation Mateen Ahmad Khan ?, Yasmeen Ansari ?, Roohi Zaman ? & Izharul Hasan ?
24 Abstract-There is a huge treasure of Compound drugs described in various pharmacopoeias that have developed
25 as a result of painstaking and cumulative efforts of elite scholars of Unani medicine. However, there has always
26 been scope for inclusion of new compound drugs whose safety and efficacy has been proved scientifically.

27 Majoon Aarad Khurma which is widely used as an effective aphrodisiac is prepared with sugar as base. It is
28 contraindicated in diabetic patients who are suffering from sexual dysfunctions. Preparation of medicines which
29 are sugar free should be innovated or designed to meet the demand of the diabetic patients. Therefore the present
30 study is aimed to develop granules of Majoon Aarad Khurma with natural sweetening agent Stevia rebaudiana.
31 Granules are more convenient and comfortable in usage and dispensing. Granules uphold the same principles
32 and maintain the same characteristics as traditional dosage forms, granules are safe, light, efficacious, stable and
33 quality controlled.

34 In present study an important Unani formulation i.e. Majoon Aarad Khurma has been modified into granules
35 using Introduction ccording to the Unani system of medicine, the health is a state of body in which there is
36 equilibrium in humors and functions of the body. To maintain the correct humoral balance there is a power of
37 self preservation called "Quwwate Mudabbirah Badan" (Immunity of body) in the body.

38 Therefore the aim of the Unani physician is to find out the cause of the underlying disruption of humors, so that
39 it can be corrected and disease can be cured. The temperament of the person is identified and diet/medicine/other
40 recommendations are made that are most suitable for achieving and maintaining health of the particular person.

41 Sexual function is an important component of quality of life and subjective well being of humans. Human
42 sexuality is a multidimensional phenomenon having biological, psychological, behavioral, clinical, moral and
43 cultural aspects. It has been integral part of all cultures since time immemorial. But no single dimension
44 of sexuality is universally dominant. Every person has sexual feelings, attitude and believes, but everyone's

6 ACUTE TOXICITY STUDY A) EXPERIMENTAL ANIMAL

45 experience is unique because it proceeds through an intentionally personal prospective. The cardinal phases in
46 sexual act in male are desire, erection, penetration and orgasm. The phases of sexual act in females are quite
47 different from male. Usually in medicine and also in cultural aspects, sexuality has been mainly concerned with
48 male sexual desire which increase in proportion to the level of secretion of the sex hormones. Sexual response
49 is triggered by both psychological and physical stimuli. Sexual problems are widespread and adversely effects
50 mood, well being, and inter-personal functioning.

51 Unani medicine treats sexual debility in its own way and proposes different methods of treatment Ilaj bil
52 Ghiza (Ditotherapy), Ilaj bil Dawa (Pharmacotherapy) and Ilaj bit Tadbeer (Regimental therapy). Therapeutic
53 use of the drugs is based on certain principles. The sexual problems are taken up in individualized way taking
54 into account the entire personality of the patient 1 . Unani medicine has holistic approach towards diagnosis and
55 treatment of sexual dysfunction that is not just confined to inability to perform the sex rather includes loss of
56 libido, erectile dysfunction, ejaculatory insufficiency, an orgasmic state, excessive nocturnal emissions and even
57 infertility in males, which may be due to Zoofe Bah (sexual dysfunction) or Nujse Mani (seminal defects). It
58 also distinguishes between sexual inadequacy and seminal inadequacy [2][3][4] .

59 In present study an important Unani compound formulation Majoon Aarad Khurma has been modified
60 into granular form using natural sweetening agent Stevia rebaudiana which has sweetening property as well
61 as hypoglycemic activity, the granules of Majoon Aarad Khurma become palatable and will not cause any
62 harm to diabetic patients who are suffering from sexual dysfunction. This study also includes evaluation of
63 physicochemical standards of Majoon Aarad Khurma and granules of Majoon Aarad Khurma and their safety
64 and toxicity study.

65 1 II.

66 2 Material and Methods

67 According to the protocol of the study "Studies on Majoon Aarad Khurma and its Granules prepared with Stevia,
68 with reference to the Standardization and Toxicity Evaluation" Majoon Aarad Khurma and Granules of Majoon
69 Aarad Khurma was prepared in the laboratory of Dept. of Ilmul Saidla, NIUM.

70 3 III.

71 4 Preparation of Majoon Aarad Khurma

72 All the required ingredients of Majoon Aarad Khurma and Granules of Majooone Aarad Khurma were procured
73 from the raw drug dealers under the supervision of the Guide, and all the raw drugs were identified and
74 authenticated by the expert Dept. of Ilmul Advia, NIUM Bangalore, (Karnataka).

75 The Majoon Aarad Khurma was prepared as per the formulation mentioned in the National Formulary of
76 Unani Medicine, Part-1, Govt. of India. The composition of Majooone Aarad Khurma is as given below: The
77 dried raw drugs from 2-7 mentioned in table were powdered in mixer and sieved in (sieve number 80), raw drugs
78 from 8-11 were powdered separately and sieved in (sieve number 40), and dates were separately dried in a hot air
79 oven at 100°C for 4 hours then powdered and passed through (sieve number 60). Qiwan was prepared according
80 to method mentioned in Formulary with 1 kilo sugar and 600 ml water; the dried drugs were mixed one by one
81 in the Qiwan and stirred slowly. Finally all the Maghaziyat (Kernels) 8-11 were mixed gradually in the Qiwan.
82 And stored in a container at room temperature for further study 5 .

83 5 IV. Preparation of Granules of Majoon Aarad Khurma

84 The granule of Majoon Aarad Khurma was prepared as per the formulation mentioned in the National Formulary
85 of Unani Medicine, Part-1, Govt. of India, the composition of granules of Majoon Aarad Khurma is as given
86 below: All the dried ingredients were powdered and sieved in (sieve number 80). All the Maghaziyat (kernels)
87 were powdered separately and sieved in (sieve number 40), and dates were separately dried in a hot air oven at
88 100 °C for 4 hours and then powdered and passed through sieve number 60. Stevia plant extract was prepared
89 with 120 ml water at low temperature for 15 minutes, and sieved through muslin cloth, the total quantity of this
90 extract obtained was 80 ml. All the dried drugs were mixed one by one in Stevia extract, and subjected into
91 the granulator (sieve number 20) for formation of granules and then stored in container at room temperature for
92 further study 5 .

93 V.

94 6 Acute Toxicity Study a) Experimental Animal

95 Swiss mice of both sexes, weighing 25-35 gm were used. The animals were procured from the, Sri Raghvendra
96 Enterprises, Vijayanagar, Bangalore, Karnataka (India).

97 Prior to the experiment the animals were allowed to acclimatized for at least one week. They were maintained
98 under standard laboratory conditions throughout the experimental period and were provided with standard
99 diet and water ad libitum unless stated otherwise. They were housed in clean polypropylene cages at room

100 temperature $25 \pm 2^\circ\text{C}$, humidity at 45-55% with 12 hours light: 12 hours dark cycle. The animal care procedures
101 and experimental protocol were in according with the guidelines of CPCSEA.

102 **7 b) Extractive Values 6**

103 For the determination of extractive values in non-successive of GMAK was carried out in Soxhlet apparatus, with
104 hydro-alcoholic solvents i.e. 50% distilled water and 50% ethanol (1:1) ratio. ??, 8 -15 Acute toxicity test was
105 performed according to the World Health Organization (WHO) guideline (WHO 2000) and the Organization of
106 Economic Co-operation and Development (OECD) guideline for testing of chemicals 420 (OECD 2001). Swiss
107 mice of either sex weighing 25-35 gram were randomly assigned to four groups (I, II, III, & IV,) of 7 mice each.
108 Mice were fasted overnight (12 hrs) with free access to water prior to administration of single doses (0.398, 5.73,
109 9.73, & 16.69 g/kg b.wt.). The extract dissolved in distilled water and administered orally once a day. After the
110 administration of the test drug all the animals were kept in polypropylene cages singly and were observed for
111 Gross behaviour and mortality at 0 min, 30 min, 60 min, 120 min, 240 min and 24 hrs. The Gross behavioural
112 changes such as piloerection, grooming, trembling, wriggling, diarrhoea, breathing difficulty, constant changing
113 position, immobility, asthenia, anorexia, ataxia, urination and syncope were monitored continuously for any
114 above abnormal changes.

115 **8 c) Methodology for Acute Toxicity Study**

116 **9 VI.**

117 **10 Physico-Chemical Evaluation**

118 The Physico-Chemical studies were carried out on Majoon Aarad Khurma and Granules of Majoon Aarad Khurma
119 in the laboratory of Dept of Ilmul Saidla, NIUM, Bangalore. Majoon Aarad Khurma and Granules of Majoon
120 Aarad Khurma were prepared and subjected to Physico-Chemical evaluation under the following parameters:

121 (1) Organoleptic properties such as the appearance, colour, smell, and taste (2) Alcohol soluble matter and
122 Water soluble matter (3) Successive extractive values (4) PH value (5) Bulk density and Tapped density (6) Ash
123 value (7) Volatile oil (8) Saponification value (9) Iodine value (10) Acid value (11) Estimation of total Alkaloids
124 (12) Resin (???) Reducing and non-Reducing sugars (14) Crude fibers (15) Thin layer chromatography (TLC)
125 was also conducted for identification of compounds.

126 **11 VII.**

127 **12 Results and Observation**

128 Both the test drugs sample Majoon Aarad Khurma and granules of Majoon Aarad Khurma were evaluated for
129 physico-chemical parameters as recommended and almost all the values of both the test drugs were found within
130 the standard limits.

131 **13 Chemical Evaluation**

132 a) Thin Layer Chromatography: [16][17][18][19][20][21] ??22[23][24][25][26][27] ??28[29] Thin layer chromatography
133 was carried out on T.L.C. pre coated aluminium plates, silica gel 60 F 254 (layer thickness 0.25 mm) for
134 ethanolic extract of both the test drug samples MAK and GMAK in various mobile phases, later sprayed by
135 different spraying reagents to visualise the spots. The R F values of the spots were calculated for both the drugs
136 by the following formula. The acute toxicity study was done on Swiss mice of either sex using Hydro-Alcoholic
137 extract of granules of Majoon Aarad Khurma orally, no behavioural changes and mortality was found during 24
138 hours observation period.

139 **14 IX.**

140 **15 Discussion**

141 Majoon Aarad Khurma is one such popular drug which is widely used as an effective aphrodisiac, which is
142 prepared with sugar as base but as we know that the intake of sugar is not advisable in diabetic patients because
143 the presence of sugar in large amount in blood may develop the complications of diabetes more rapidly so any
144 preparation having sugar as a base or content may create such risk. So even after gaining such popularity as
145 an aphrodisiac, Majoon Aarad Khurma cannot be given to diabetic patients who are suffering from erectile
146 dysfunction. Hence sugar free an alternate formulation should be innovated or designed to meet the demand of
147 the diabetic patients.

148 16 X.

149 17 Conclusion

150 The Physicochemical standards for scientific evaluation of Majoon Aarad Khurma and granules of Majoon Aarad
151 Khurma were estimated and the standards were evaluated as recommended by CCRUM.

152 Based on the finding it is concluded that ? Granules possessed the same principles and maintained same
153 characteristics as traditional dosage form Majoon Aarad Khurma. ? The granules of Majoon Aarad Khurma
154 were found to be more stable, convenient and comfortable in usage and dispensing, and also safe, light, efficacious,
155 cost effective and quality controlled. ? Stevia a natural sweetening agent which was used as base for granules
156 was evaluated for its toxicity in animal models and no toxicity was found, hence Stevia can be used as safe and
157 efficacious sweetening agent in preparation of granules as well as in other Unani formulations.



17 CONCLUSION

1

Sl. No.	UNANI NAME	BOTANICAL NAME	PART USED	QUANTITY
1	Khurma	<i>Phoenix dactylifera</i>	Fruit	200gm
2	Samagh arbi	<i>Acacia arabica</i>	Gum	200gm
3	Singhara khushk	<i>Trapa bispinosa</i>	Fruit	200gm
4	Satawar	<i>Asparagus racemosus</i>	Root	50gm
5	Jaiphal	<i>Myristica fragrans</i>	Nutmeg	1.25gm
6	Javitri	<i>Myristica fragrans</i>	Mace	1.25gm
7	Qaranfal	<i>Myrtus caryophyllus</i>	Flower	2.5gm
			Buds	
8	Maghaze Badam	<i>Prunus amygdalus</i>	Fruit	25gm
9	Maghaze Chilghoza	<i>Pinus gerardiana</i>	Fruit	25gm
10	Maghaze Fundaq	<i>Corylus avellana</i>	Fruit	25gm
11	Maghaze Pambadana	<i>Gossypium herbaceum</i>	Fruit	5gm
12	Qand safaid	Sugar	Sugarcane	1kg

Figure 2: Table 1 :

2

Sl. No.	UNANI NAME	BOTANICAL NAME	PART USED	QUANTITY
1	Khurma	<i>Phoenix dactylifera</i>	Fruit	200gm
2	Kamagh arbi	<i>Acacia arabica</i>	Gum	200gm
3	Singhara khushk	<i>Trapa bispinosa</i>	Fruit	200gm
4	Satawar	<i>Asparagus racemosus</i>	Root	50gm
5	Jaiphal	<i>Myristica fragrans</i>	Nutmeg	1.25gm
6	Javitri	<i>Myristica fragrans</i>	Mace	1.25gm
7	Qaranfal	<i>Myrtus caryophyllus</i>	Fruit	2.5gm
8	Maghaze Badam	<i>Prunus amygdalus</i>	Fruit	25gm
9	Maghaze Chilghoza	<i>Pinus gerardiana</i>	Fruit	25gm
10	Maghaze Fundaq	<i>Corylus avellana</i>	Fruit	25gm
11	Maghaze Pambadana	<i>Gossypium herbaceum</i>	Fruit	5gm
12	Stevia plant powder	<i>Stevia rebaudiana</i>	leaves	3.50gm

Figure 3: Table 2 :

3

Sl. No	Physico Chemical Properties	MAK	GMAK
Organoleptic Properties			
	Appearance	Semi Solid	Granules
1.	Odour	Brownish	Brownish
	Smell	Pleasant	Pleasant
	Taste	Sweet	Sweet
2.	Alcohol Soluble Matter	65.5%	24.6%
3.	Water Soluble Matter	46.5%	36.6%
Successive Extractives			
	Petroleum Ether	2.4%	4.2%
4.	Chloroform	0.4%	0.6%
	Ethyl Alcohol	41.7%	19.13%
	Aqueous	35%	37.2

Figure 4: Table 3 :

4

Extract	Solvent System	No. of Spots	R f Value	Colours
MAK	Toluene: Ethyl acetate (7:3, with 2 drop Sulphuric acid)	3	0.27 0.31	Green Yellow
Ethanol			0.50 0.31	Pink Green
GMAK	Toluene: Ethyl acetate(7:3, with 2 drop Sulphuric acid)	5	0.36 0.50 0.68 0.75	Brown Light Pink Pink Yellow

Figure 5: Table 4 :

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