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Review Article

## Majoon Halaila: A Potential Compound Formulation to Counter Premature Ageing-A Review

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### Abstract

*Majoon Halaila* is polypharmaceutical preparation of Unani System of Medicine given particularly in old age to counter the effects of ageing such as greying of hair, decreased body strength, decreased memory power, weakness of heart etc. It is an electuary which is prepared especially for the people engaged in mental work. It is a compound of *Halailajat* with other ingredients prepared by the process of *Ajin* (mixing), in a semisolid form hence, renamed as *Majoon Halaila*. This compound formulation contains 10 ingredients that possess cardiac tonic, exhilarant, memory enhancer, brain tonic activities. It is being particularly used in age related dementia as well as to counter the effects of ageing in Unani system of Medicine.

**Keywords:** *Majoon Halaila*, Brain tonic, Memory enhancer, Anti-ageing, Unani Medicine

### Introduction:

Unani System of medicine is one of the oldest systems of medicine that prevails till date with its efficient plant, animal and mineral resources derived drugs. Over 2500 years ago the father of medicine, Hippocrates was practising it, however his medicine included a great touch of ancient Egyptian medicine as well as important components of the ancient Mesopotamian traditions. The methods of treatment according to Unani System of Medicine is divided into four different parts namely *Ilaj Bil Ghiza* (dietotherapy), *Ilaj Bit Tadbeer* (regimenal therapy), *Ilaj Bid Dawa* (pharmacotherapy) and *Ilaj Bil Yad* (surgery). Considering pharmacotherapy, both single and compound drugs are being prescribed. Among the compound drugs *Majoon Halaila* is being prescribed from centuries with great reputation. It is an electuary belonging to the class of polypharmaceutical preparations. *Majoon Halaila* is given particularly in old age to counter the effects of ageing. This electuary which is prepared especially for the people engaged in mental work and that too processed in a semisolid form hence, renamed as *Majoon Halaila*. According to different Unani *Qarabadeen* (pharmacopoeias) this compound preparation is used as stomach tonic, liver tonic, heart tonic and nervine tonics, appetizer, digestive and stomachic<sup>1</sup>. In old

age it is being given as a general tonic, in polyarthralgia and to improve age related dementia.

### Method of Preparation:

For making Majoon or any of its allied preparations, *Qiwam* (base) of different consistencies (tar) is generally made. It depends on the nature of ingredients to be used. The *Qiwam* is generally made by adding *Aab* (water), *Araq* (distillate) or *Aab-e-amar* (fruit juices), etc in any of the bases of purified honey, sugar, candy or jiggery etc and boiled over a low fire till it acquires a required consistency. The bases are generally purified by adding *Aab-e-lemu* (lemon juice), *Satt-e-lemu* (lemon extract), or *Shibb-e-yamani* (Alum) before making *Qiwam*. Afterwards the powdered ingredients are mixed in *Qiwam* to prepare Majoon. *Qiwam* for majoon is of two tar (consistency). Majoon-e-halaila is made on the same principle while using water with sugar or honey as a base and boiled over low fire till *Qiwam* (consistency) of two tar is achieved<sup>2</sup>.

### Ingredients of Majoon Halaila

Ingredients of *Majoon Halaila* are slightly varied in different *Qarabadeen*. In this review *Majoon Halaila* was prepared according to the formula given in *Qarabadeen Azam*<sup>3</sup>. The ingredients of *Majoon Halaila* are given in the Table 1.

**Table 1:** Showing ingredients with their botanical names and quantity

S.N	Name of drug	Botanical name	Quantity
1	Halaila Siyah	<i>Terminalia chebula</i>	2 dirham (7gm)
2	Balaila	<i>Terminalia belerica</i>	5 dirham (17.5gm)
3	Kundur	( <i>Boswellia serrata</i> )	5 dirham (17.5gm)
4	Tabasheer safaid	<i>Bambusa arundinacea</i>	5 dirham (17.5gm)
5	Sandal safaid	<i>Santalum album</i>	3 dirham (10.5gm)
6	Filfil siyah	<i>Piper nigrum</i>	2.5 dirham (8.75gm)
7	Zanjabeel	<i>Zingiber officinale</i>	1.5 dirham (5.25gm)
8	GulSurkh	<i>Rosa damascene</i>	1.5 dirham (5.25gn)
9	Waj	<i>Acorus calamus</i>	1.5 dirham (5.25gm)
10	Qand safed	Sugar	three times of total weight of all drugs

**Dosage and Administration:** 10 gm *Majoon Halaila* should be taken orally at bed time for two months.

### Actions and Uses

*Majoon Halaila* is well known compound formulation given in old age. *Majoon Halaila* is reported to be cardiac tonic, Table 2: Showing drug, their parts used, functions/uses and scientific studies.

exhilarant<sup>2,4</sup> stomachic<sup>1,2</sup> and cephalic tonic, memory enhancer<sup>1,2,4</sup> laxative, blood purifier, deobstruent, digestive, resolvent<sup>1,2,4</sup> and antiaging activities<sup>1,3</sup>. Unani physicians recommended it to prevent early ageing<sup>2,5,6</sup>, and to delay ageing.<sup>7,8,9,10</sup> Due to its anti-ageing activity, it is recommended for the promotion of health in elderly.

Drug with Botanical name	Parts used	Temperament	Functions/ Uses	Scientific studies
<i>Terminalia chebula</i>	fruit	Cold 1° Dry 2°	Memory enhancer, gastric tonic, exhilirant, cardiac tonic, eye tonic. It is used in the treatment of Dementia, Palpitation, joint pain, Anorexia, Hepatopathy, Splenopathy, General debility. It is also used to evacuate atrabilious humour.	Hypoglycaemic effect and hypolipidemic effect <sup>11</sup> Anti-oxidant effect <sup>12</sup> Anti arthritic activity <sup>13,14</sup> Neuroprotective effect <sup>15</sup> Antigastritis effect <sup>16</sup> Hypourecemic effect <sup>17</sup> improving gastrointestinal motility <sup>18</sup> Cardiotonic activity <sup>19,20</sup> Hepatoprotective effect <sup>21</sup>
<i>Terminalia belerica</i>	Fruit <sup>22,23</sup> bark <sup>22,23</sup> seed <sup>23</sup> stem <sup>22</sup>	Cold 1° Dry 2°	Stomach tonic, Eye tonic, Brain tonic, Astringent, laxative, Demulcent, Memory tonic, Appetizer, Unripe fruit is purgative, while ripe fruit is astringent.  It is beneficial in atony of stomach, Dyspepsia, weakness of stomach and intestines	Antidiabetic and antioxidant activity <sup>24</sup> Antihypertensive Effect: <sup>25</sup> Anti-Spasmodic and Bronchodilatory Properties: <sup>26</sup>  Hepatoprotective activity <sup>27</sup> Anti-ulcer activity <sup>28</sup> Antithrombotic and Thrombolytic activity <sup>29</sup>
<i>Boswellia serrata</i> <sup>30,81</sup>	essential oil <sup>30</sup> gum <sup>31</sup> bark <sup>32</sup> gum-resin <sup>32</sup>	Hot 2° Wet 2°	Eliminates morbid material from vital pneuma and psychic pneuma, Cardiac tonic, Memory tonic, Carminative, Expectorant, Mild astringent, Digestive, Strengthens gum, resolvent, Atony of stomach,	Hepatoprotective effect in diabetic patients <sup>33</sup> Anti inflammatory effect <sup>34</sup> Neuroprotective and antioxidant activity <sup>35</sup>

			Palpitation, amnesia, Urinary incontinence, Cataract, Arthritis. In healthy people it is used for providing energy and strength.	Anti osteoarthritic activity <sup>36</sup> Anti-convulsant Activity <sup>37</sup> Hypolipidemic Activity. <sup>38,39</sup> Hepatoprotective Activity: <sup>40</sup> Antigastritis activity <sup>41</sup> Hypoglycemic Activity. <sup>42</sup> Anti-Asthmatic Activity: <sup>43</sup>
Ba mbusa arundinacea <sup>30,32</sup>	silicocious secretions from interior stalks or stems of female plant <sup>30</sup> shoots, leaves, seeds, roots <sup>30</sup> articulations <sup>30</sup>	Cold 2° Dry 3° <sup>44</sup>	Astringent, Cardiotonic, Tonic for liver, strengthens teeth, Exhilarant, atony of stomach,	Antihyperlipidemic activity <sup>45</sup> Anti-hypertriglyceridemic and anti-hyperglycemic effect: <sup>46</sup> Silicon and mental health <sup>47</sup> Anti-oxidant activity: <sup>48</sup>
Santalum album <sup>30</sup>	Wood, volatile oil	Cold 3° Dry 2°	Cardiotonic exhilarant Sedative, brain tonic, stomachic, intestinal tonic, memory enhancer, Strengthens gums, Appetizer, weakness of stomach, weakness of heart, Palpitation, weakness of brain, Gastritis, Hepatitis, Urinary diseases, Burning micturition	antipsychotic agent. <sup>49</sup> Antioxidant efficacy <sup>49</sup> Antiinflammatory activity <sup>50</sup> Antihyperglycemic and antihyperlipidemic effect <sup>51</sup> Gastroprotective effect <sup>52</sup> Hepatoprotective effect <sup>53</sup> Cardioprotective activity <sup>54</sup>
Cichorium intybus <sup>30</sup>	whole plant <sup>22</sup> Seeds roots, flowers <sup>30</sup> fruit <sup>55</sup>	Cold 1° Dry 1° <sup>56</sup>	Cardiotonic, Liver tonic, Stomachic, deobstruent, clears vitiated humours from stomach, Diuretic, Weakness of spleen, liver disorders, ascitis/dropsy, arthralgia, Gout	Antimicrobial and antioxidant activity <sup>57</sup> Hepatoprotective activity; <sup>58</sup> Nephro protective effect: <sup>59</sup> Anti diabetic activity <sup>60</sup> Hypolipidemic activity. <sup>61</sup> Antioxidant effect <sup>62</sup>
Piper nigrum <sup>30</sup>	Fruits <sup>63,64</sup> oleo-resin <sup>63</sup>	Hot 4° Dry 4°	resolvent, carminative, memory tonic, liver tonic, stomachic, appetizer, digestive, expectorant, aphrodisiac, Deobstruent, nervine tonic Weakness of nerves, Diseases of brain due to dominance of phlegm and atrabilious humour	Antidepressant activity of black pepper <sup>65</sup> Digestive activity of black pepper <sup>66</sup> Antioxidant activity of black pepper <sup>67</sup> Anti-inflammatory activity of black pepper: <sup>68</sup> Cardioprotective effect <sup>69</sup> Hepatoprotective activity of black pepper: <sup>70</sup> Neuroprotective activity <sup>71</sup>
Zingiber officinale <sup>30</sup>	Rhizome <sup>30</sup>	Dry ginger; Hot 3° Dry 2° Fresh ginger; Hot 3° Dry 1°	digestive, laxative, Stomach tonic, carminative, Memory tonic, cholagogue & melanogogue, It is used in old age and in condition of dominance of phlegm in the body. Dyspepsia, Nervine Disorders due to cold, Urinary Incontinence, Paralysis, Facial Palsy, numbness, catalepsy, spasm, Sciatica, Gout	Analgesic, Antiinflammatory and Hypoglycaemic effects <sup>72</sup> Anti-atherosclerotic activity. <sup>73</sup> Anticholesterolemic activity <sup>73</sup> Anti osteoarthritic activity <sup>75</sup> Cholagogic effect <sup>76</sup> Choleretic activity <sup>76</sup> CNS stimulating activity. <sup>77</sup> Digestive effects <sup>78</sup>

				Hypotensive activity <sup>79</sup> Thromboxane A2 inhibition <sup>80</sup> Hepatoprotective effect. <sup>81</sup> Antioxidant effect <sup>81,82</sup> Cardiotonic activity <sup>83</sup> Cardivascular effect <sup>84</sup>
Rosa damascena <sup>30</sup>	flower petals flower flower buds, stamens volatile oil, essential oil <sup>30</sup> anther <sup>85</sup>	Cold 1° Dry 2° <sup>85</sup> moderate <sup>86</sup> murakkabul quwa <sup>87</sup>	Exhilrant and tonic to principal organs, stomach tonic, intestinal tonic, resolvent, sedative, deobstruent, strengthens teeth and gums, laxative, carminative	Anti-aging effects <sup>88</sup> Laxative effect <sup>89</sup> Effect on cardiovascular system <sup>90</sup> Antidiabetic activity <sup>91</sup> Anti hyperlipidemic effects <sup>91</sup>
Acorus Calamus <sup>30</sup>	Dried rhizome <sup>64</sup>	Hot 3° Dry 2° <sup>30,64</sup>	Nervine tonic, clears vitiated humour from brain, (brain tonic, clears vitiated humour from stomach, aphrodisiac, Appetizer, Memory tonic, digestive, clears vitiated humour  diseases of nervous system, diseases of spleen, weakness of digestive system, gout, urinary incontinence, cataract, amnesia, numbness, all illnesses due to cold. Continuous use of it provides <i>hararat</i> in nerves of people of colder temperament. <sup>64</sup> It is also used in numbness, atony, insanity, epilepsy, paralysis. <sup>92</sup>	Anti-diabetic Activity <sup>93</sup> Insulin Sensitizing Activity: <sup>94</sup> Antidepressant Activity: <sup>95</sup> Antioxidant Activity: <sup>96</sup> Antihepatotoxic Activities <sup>97</sup> Antihypertensive Effect: <sup>98</sup> Anti-ischemic Heart Disease Activity: <sup>99</sup> Bronchodilatory Activity: <sup>100</sup> Nephro protective effect <sup>101</sup>

## Discussion:

In classical Unani literature *Majoon e halaila* described as stomachic<sup>1,2</sup>, hepatoprotective, gastroprotective, appetite stimulant, digestive, cephalotonic<sup>1,2</sup>, cardiotonic<sup>1,2</sup>, laxative<sup>1,2</sup>, anti ageing.<sup>8,9,10</sup> It contains 10 ingredients. Their actions reported as *kundur*, *filfil siyah*, *Zanjabeel* and *waj* stimulate innate heat<sup>64</sup> which is essential for *Quwa* to perform *afa'äl* (functions). *Halaila*, *balaila*, *sandal*, *gule surkh* and *waj* by virtue of their *mulattif* property<sup>31</sup> liquifies the *ghaleez madda* by their moderate heat. *Tukhme kasni*, *filfil siyah*, *zanjabeel*, and *gule surkh* by their *mufatteh sudud*<sup>56</sup> action break the *akhlate luzuja* in small pieces which can be evacuated from the body. *Tukhme kasni* and *filfil siyah* due to their *mudire bo*<sup>30,56</sup> property and *halaila*, *balaila*, *zanjabeel* and *gule surkh* by their laxative action<sup>30</sup> evacuate phlegm and atrabilious humour through bowel and bladder. *Halaila*, *balaila*, *sandal*, *filfil siyah*, *zanjabeel* and *waj* by their *mushtahi* property<sup>56</sup> increases appetite. *Halaila*, *kundur*, *tabasheer*, *sandal*, *tukhme kasni*, *filfil siyah*, *zanjabeel*, *gule surkh*, and *waj* due to their *muqawwie me'da*<sup>56,64</sup> *muqawwie jigar*<sup>32</sup> and digestive action<sup>56</sup> 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*<sup>32</sup> action provide strength to the *quwwate haiwania*. *Halaila*, *balaila*, *kundur*, *sandal*, *filfil siyah*, *zanjabeel* and *waj* by their *muqawwie dimagh*<sup>30</sup> property and *muqawwie hafiza*<sup>64</sup> property strengthen *quwwate nafsania*. From the above discussion we can conclude that *Majoon halaila* stimulate innate heat, evacuate *fazil* and superfluous matter, strengthen *quwwate tabiya*, *haiwania* and *nafsania* thereby

regulate/improve the functions of the body thus increase life expectancy and improve quality of life.

*Majoon Halaila* appeared to be efficacious in the geriatric problems. These functions have been proved by scientific studies. However clinical trials or scientific studies are lacking on *Majoon Halaila* as a compound drug. In a clinical trial conducted in National Institute of Unani Medicine Hospital, Bangalore, 40 eligible subjects were selected and randomly assigned into two groups, 30 in test group and 10 in control group. Test group was administered with 10 gm of *Majoon Halaila* orally at bedtime for two months while control group was given placebo for the same period of time as that of test drug. Response was measured by the assessment of Appetite score, Weight, Grip strength score, Physical activity score, 6-CIT score on every 15<sup>th</sup> day and complete haemogram, lipid profile, AIP, LVEF pre and post treatment. 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. No adverse effects or toxicity has been reported during or after the trial.

## Conclusion:

It can be said that *Majoon Halaila* can have a major impact on the patient and family's well being and on the cost of long term care. Therefore it appears to hold promise in promoting the

## Farzana Eqbal

general health and thereby reducing the morbidity and mortality in elderly, thus increase the life expectancy and improve their quality of life. Thus we can conclude that

However more scientific studies and clinical trials are needed on this compound formulation to ensure its scientific validation for clinical use in patients in general and in elderly in particular.

## Conflicts of Interest

The authors declare no conflicts of interest.

## References

1. Azmi WA. *Murakkabat Advia*. Part II. New Delhi: Idara kitabul shifa; 2010.385.
2. Said HM. *Hamdard Pharmacopoeia of Eastern Medicine*. Delhi: Sri Satguru Publications, Indian Book Centre; 1997.292.
3. Khan M. A. *Qarabadeen Azam*. New Delhi: CCRUM, Ministry of H & FW; 2009.489
4. All India Unani Tibbi Conference. *Qarabadeen Majeedi*. 9th edition. New Delhi: Ajanta Offset Limited; 1986.400.
5. Hafeez A. *Qarabadeen Jadeed*. New Delhi: CCRUM, Ministry of H & FW; 2005.223.
6. Jilani G. *Kitabul Murakkabat al maroof Makhzanul Murakkabat*. New Delhi: Aeiaz Publishing House; 1995.372.
7. Hasrat AA. *Makhzan ul Mujarribat*. (Urdu translation of Qarabadeen Azam). New Delhi: Aeiaz publishing house; 1996.580.
8. Kabeeruddin H. *Alqarabadeen*. New Delhi: CCRUM, Ministry of H & FW; 2006.1219.
9. Kabeeruddin M. *Bayaz e kabeer*. Vol 1. Hyderabad: Hikmat Book Depot(P); 1935.144, 145.
10. Ahmad R. *Dehli ke sahi murakkabat*. New Delhi: Aeiaz publishing house; 2003.287.
11. Murali YK, Anand P, Tandon V, Singh R, Chandra R, Murthy PS. Long-term effects of *Terminalia chebula* Retz. on hyperglycemia and associated hyperlipidemia, tissue glycogen content and in vitro release of insulin in streptozotocin induced diabetic rats. *Exp Clin Endocrinol Diabetes*. 2007 Nov; 115(10):641-6. <https://doi.org/10.1055/s-2007-982500>
12. Mahesh R, Begum VMB. Antioxidant Effect Of *Terminalia Chebula* Aqueous Extract On Age-Related Oxidative Stress In Heart. *Iranian Journal Of Pharmacology & Therapeutics* 2007; 6:197-201.
13. Afshari AR, Sadeghnia HR, Mollazadeh H. A Review on Potential Mechanisms of *Terminalia chebula* in Alzheimer's disease. *Advances in Pharmacological Sciences*. Volume 2016, Article ID 8964849:1-14 <https://doi.org/10.1155/2016/8964849>
14. Seo et al. Anti-Arthritic and Analgesic Effect of NDI10218, a Standardized Extract of *Terminalia chebula*, on Arthritis and Pain Model. *Biomolecules and Therapeutics* 2012; 20(1):104-112 <https://doi.org/10.4062/biomolther.2012.20.1.104>
15. Rajmohamed MA, Natarajan S, Palanisamy P, Abdulkader AM, Govindaraju A. Antioxidant and Cholinesterase Inhibitory Activities of Ethyl Acetate Extract of *Terminalia chebula*: Cell-free In-vitro and In-silico Studies. *Pharmacognosy Magazine* 2017; 13(Suppl 3):S437-S445. [https://doi.org/10.4103/pm.pm\\_57\\_17](https://doi.org/10.4103/pm.pm_57_17)
16. Malekzadeh F, Ehsanifar H, Shahamat M, Levin M, Colwell RR. Antibacterial activity of black myrobalan (*Terminalia chebula* Retz) against *Helicobacter pylori*. *International Journal of Antimicrobial Agents* 2001; 18(1):85-88. [https://doi.org/10.1016/S0924-8579\(01\)00352-1](https://doi.org/10.1016/S0924-8579(01)00352-1)
17. Usharani P, Nutalapati C, Pokuri VK, Kumar CU, Taduri G. A randomized, double-blind, placebo-, and positive-controlled clinical pilot study to evaluate the efficacy and tolerability of standardized aqueous extracts of *Terminalia chebula* and *Terminalia bellerica* in subjects with hyperuricemia. *Clinical Pharmacology: Advances and Applications* 2016; 8:51-59. <https://doi.org/10.2147/CPAA.S100521>
18. Tamhane M D, Thorat S P, Rege N N, Dahanukar S A. Effect of oral administration of *Terminalia chebula* on gastric emptying: an experimental study. *J Postgrad Med* 1997; 43:12
19. Srivastava RD, Dwivedi S, Shreenivasan KK, Chandrashekhar. *Cardiovascular Effects Of Terminalia Species Of Plants*. *Indian Drugs* 1992; 29:144-149
20. Reddy B.M., Ramesh M, Appa Rao, A.B.N., Prabhakar MC, Isolation An Studies On Cardiotonic Activity Of Active Principles From The Fruits *Terminalia Chebula*. *Proceeding of 46th Annual Indian Congress Chandigarh*, 28-30th Dec 1994
21. Choi et al. Hepatoprotective Effect of *Terminalia chebula* against t-BHP-Induced Acute Liver Injury in C57/BL6 Mice. *Hindawi Publishing Corporation Evidence-Based Complementary and Alternative Medicine Volume 2015, Article ID 517350, 11 pages* <https://doi.org/10.1155/2015/517350>
22. Anonymous. *Medicinal plants in folklores of southern India*. New Delhi: CCRUM; YNM.52,69,124,138,158,159,169.
23. Anonymous. *Standardisation of single drugs of Unani Medicine*. Part III, New Delhi: CCRUM; 1997. p 20-25.
24. Sabu MC, Kuttan R. Antidiabetic and antioxidant activity of *Terminalia bellerica* Roxb. *Indian J Exp Biol*. 2009 Apr;47(4):270-5.
25. Khan AU, Gilani AH. Pharmacodynamic Evaluation of *Terminalia bellerica* for its Anti-Hypertensive Effect. *Journal of Food and Drug Analysis*. 2008; 16:6-14. <https://doi.org/10.38212/2224-6614.2355>
26. Gilani AH, Khan AU, Tuba Ali T, Saad Ajmal S. Anti-Spasmodic and Bronchodilatory Properties of *Terminalia bellerica* Fruit. *Journal of Ethnopharmacology*. 2008; 116:528-538. <https://doi.org/10.1016/j.jep.2008.01.006>
27. Shukla S, Jadon A, Bhaduria M. Protective effect of *Terminalia bellerica* Roxb, and gallic acid against carbon tetrachloride induced damage in albino rats. *Journal of Ethnopharmacology*. 2006; 109:214-218. <https://doi.org/10.1016/j.jep.2006.07.033>
28. Choudhary GP. Anti-ulcer activity of the ethanolic extract of *Terminalia bellerica* Roxb. Oct-Dec 2012; 1(4):1293-1297.
29. Ansari AV, Siddiqui HH, Singh PS. Antithrombotic and Thrombolytic activity of *Terminalia bellerica* fruit extracts. *Res. J of Pharmaceutical Biological and Chemical Sci.* 2012; 3(2):471-78.
30. Nadkarni AK, *Indian Materia Medica*. 3rd edition. Vol 1. Bombay: Popular Book Depot; 1976. 35-37,172-174,312-314,969-972,1072-1073,1098-1102,1202-1210,1308-1314.
31. Ibn Sina. *Alqanoon fil tib* (Urdu translation by G H Kantoori). Vol II. New Delhi: Idara kitabul Shifa; 2010.296,324-328,353,360,361,426,433.
32. Prajapati ND, Purohit SS, Sharma AK, Kumar T. *A Handbook of medicinal plants*. Agrobios (India); 2009.13,14,82,96,139,404,445,458,459,507, 508,552
33. Ahangarpour A, Heidari H, Fatemeh RA, et al. Effect of *Boswellia serrata* supplementation on blood lipid, hepatic enzymes and fructosamine levels in type2 diabetic patients. *J Diabetes Metab Disord*. 2014; 13:29. <https://doi.org/10.1186/2251-6581-13-29>
34. Singh GB, Atal CK. Pharmacology of an extract of salai guggul ex- *Boswellia serrata*. *Indian J Pharmacol* 1984; 16:51.
35. Yi Ding et al. Neuroprotection by Acetyl-11-Keto- $\beta$ -Boswellic Acid, in Ischemic Brain Injury Involves the Nrf2/ HO-1 defense Pathway. *Scientific Reports*, 2014; 4(7002):1-9. <https://doi.org/10.1038/srep07002>
36. Gupta PK, Samarakoon SMS, Chandola HM, Ravishankar B. Clinical evaluation of *Boswellia serrata* (Shallaki) resin in the management of Sandhivata (osteoarthritis). *Ayujournal* 2011; 32(4):478-482. <https://doi.org/10.4103/0974-8520.96119>

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*Majoon halaila* is safe and effective antiaging formulation and has encouraging potential in the health promotion of elderly people.

37. Ziyaurrahman AR, Patel J. Anticonvulsant Effect of *Boswellia serrata* by Modulation of Endogenous Biomarkers. *Der Pharmacia Lettre* 2012 Sept 4; 4(4):1308-1326.

38. Zutti U, Rao PG, Kaur S. Mechanism of Cholesterol Lowering Effect of Salai guggal ex-*Boswellia serrata* Roxb. *Indian J Pharmacol* 1986; 18:182-3.

39. Pandey RS Extract of gum resins of *Boswellia serrata* L. inhibits lipopolysaccharide induced nitric oxide production in rat macrophages along with hypolipidemic property. *Indian J Exp Biol.* 2005 Jun; 43(6):509-16.

40. Jyothi Y, Jagadish V, Asad KM. Effect of Hexane Extract of *Boswellia Serrata* Oleo-Gum Resin on Chemically Induced Liver Damage. *Pak J Pharm Sci*, 2006; 19(2):125-129.

41. Singh S et al. The gastric ulcer protective effect of boswellic acids, a leukotriene inhibitor from *Boswellia serrata*, in rats. *Phytomedicine.* 2008; 408-415  
<https://doi.org/10.1016/j.phymed.2008.02.017>

42. Al-Awadi F, Fatania H, Shamte U. The effect of a Plants Mixture Extract on Liver Gluconeogenesis in Streptozocin induced Diabetic Rats. *Diabetes Res.* 1991; 18(4):163-8.

43. Gupta V, Gupta A, Parihar S, Gupta R, Luttko H, Safayhi, Ammon HP. Effect of *Boswellia serrata* gum Resin in Patient with Bronchial Asthma: Results of a Double Blind, Placebo Controlled 6 week Clinical Study. *Eur J Med Res* 1998; 3(1):511-4.

44. Baitar I. Kitab ul Jameul Mufradat al Advia wal Aghzia, jild 3. New Delhi: CCRUM, Ministry of H & FW; 1999. p193-194,211-213,377-390.

45. Garcimartín A, Santos-López JA, Benedí J, Bastida S, Sánchez-Muniz FJ. Effects of silicon inclusion in restructured meat-enriched diet on lipoprotein profile and composition in aged wistar rats. *Atherosclerosis*, 2014; 235(2): e202-e203.  
<https://doi.org/10.1016/j.atherosclerosis.2014.05.599>

46. Garcimartín A, López-Oliva ME, Macho-González A, Bastida S, Benedí J, Sánchez-Muniz FJ. Hypoglycaemic and hypotriglyceridaemic postprandial properties of organic silicon. *Journal of Functional Foods* 2017; 29:290-294  
<https://doi.org/10.1016/j.jff.2016.12.040>

47. Gillette-Guyonnet S, Andrieu S, Vellas B. The potential influence of silica present in drinking water on Alzheimer's disease and associated disorders. *J Nutr Health Aging* 2007; 11:119-124

48. Garcimartín A, Santos-López JA, Bastida S, Benedí J, Sánchez-Muniz FJ. Silicon enriched restructured pork affects the lipoprotein profile, VLDL oxidation, and LDL receptor gene expression in aged rats fed an atherogenic diet. *The Journal of nutrition*, 2015; 145(9):2039-2045. <https://doi.org/10.3945/jn.115.213934>

49. Pedapati SHS, Khan MJ, Prabhakar P, Giridhar P. Cyanidin-3 glucoside, nutritionally important constituents and in vitro antioxidant activities of *Santalum album* L. berries. *Food Research International* 2013; 50(1):275-281  
<https://doi.org/10.1016/j.foodres.2012.10.024>

50. Sindhu RK, Upma, Kumar A, Arora S, *Santalum album* Linn: A review on Morphology, Phytochemistry and Pharmacological aspects. *Intl J PharmTech Res*, 2010; 2:914-919

51. Kulkarni CR, Joglekar MM, Patil SB, Arvindekar AU. Antihyperglycemic and antihyperlipidemic effect of *Santalum album* in streptozotocin induced diabetic rats. *Pharmaceutical Biology*, 2012; 50:360-365.  
<https://doi.org/10.3109/13880209.2011.604677>

52. Ahmed et al. Anti-ulcer Activity of Sandalwood (*Santalum album* L.) Stem Hydroalcoholic Extract in Three Gastric-Ulceration Models of Wistar Rats. *Boletín Latinoamericano y del Caribe de Plantas Medicinales y Aromáticas* 2013; 12(1):81-91.

53. Vengal RP, Ashok CK, Ashwini G, Ambareesh KR, Sangeetha S. Evaluation of Hepatoprotective Activity of *Santalum Album* (Stem) Against Paracetamol Induced Hepatotoxicity in Albino Wistar Rats. *International Journal of Innovative Pharmaceutical Research.* 2014; 5(1):370-373.

Journal of Drug Delivery & Therapeutics. 2022; 12(2-s):178-184

54. Khan, MS, Singh M, Khan MA, Ahmad S, Protective effect of *Santalum album* on doxorubicin induced cardiotoxicity in rats. *World Journal of Pharmaceutical Research*, 2014; 3(2):2760-2771.

55. Anonymous. Standardisation of single drugs of Unani Medicine. Part I, New Delhi: CCRUM; 1997.60-65, 86-90,156-160.

56. Baitar I. Kitab ul Jameul Mufradat al Advia wal Aghzia, jild 4. New Delhi: CCRUM. Ministry of H & FW:2003.201-206,412-414,416-419,636-643.

57. Mehmood N, Zubair M, Rizwan K, Rasool N, Shahid M, Ahmad V. Antioxidant, Antimicrobial and Phytochemical Analysis of *Cichorium intybus* Seeds Extract and Various Organic Fractions. *Iranian Journal of Pharmaceutical Research* 2012; 11(4):1145-1151.

58. Gilani AH, Janbaz KH. Evaluation of the liver protective potential of *Cichorium intybus* seed extract on Acetaminophen and CCl4-induced damage. *Phytomedicine*, 1994; 1:193-197.  
[https://doi.org/10.1016/S0944-7113\(11\)80064-4](https://doi.org/10.1016/S0944-7113(11)80064-4)

59. Pourfarjam Y et al. Effect of *Cichorium intybus* L. seed extract on renal parameters in experimentally induced early and late diabetes type 2 in rats. *Taylor and Francis Group* 2017; 39(1):211-221. <https://doi.org/10.1080/0886022X.2016.1256317>

60. Ghamarian A, Abdollahi M, Su X, Amiri A, Ahadi A, Nowrouzi A. "Effect of chicory seed extract on glucose tolerance test (GTT) and metabolic profile in early and late stage diabetic rats," *DARU Journal of Pharmaceutical Sciences*, 2012; 20:56-65.  
<https://doi.org/10.1186/2008-2231-20-56>

61. Cho AS et al. Chlorogenic acid exhibits anti-obesity property and improves lipid metabolism in high-fat diet-induced-obese mice. *Food and chemical toxicology* 2010; 48:937-943  
<https://doi.org/10.1016/j.fct.2010.01.003>

62. Mehmood N, Zubair M, Rizwan K, Rasool N, Shahid M and Ahmad VU. Antioxidant, antimicrobial and phytochemical analysis of *Cichorium intybus* seeds extract and various organic fractions. *Iranian Journal of Pharmaceutical Research* 2012; 11(4):1145-1151.

63. Multani HC. Hindustan aur Pakistan ki Jadi Bootiyan aur unke Fawaid. Part II. Lahore: Maktaba Daniyal; YNM.190-191,197-198.

64. Mohiuddin G, Fasihuddin C. Rehnuma e aqaqeer. Vol 2. New Delhi: Aejaaz Publishing House; 2004.116-124,233-243,294-299.

65. Mao QQ, Huang Z, Zhong XM, Xian YF, Ip SP. Piperine reverses the effects of corticosterone on behavior and hippocampal BDNF expression in mice. *Neurochem Int.* 2014 Jul; 74:36-41.  
<https://doi.org/10.1016/j.neuint.2014.04.017>

66. Patel K and Srinivasan K. Studies on the influence of dietary spices on food transit time in experimental rats. *Nutr Res* 2001; 21:1309-14. [https://doi.org/10.1016/S0271-5317\(01\)00331-1](https://doi.org/10.1016/S0271-5317(01)00331-1)

67. Hritcu L, Noumedem JA, Cioanca O, Hancianu M, Kuete V, et al. Methanolic extract of *Piper nigrum* fruits improves memory impairment by decreasing brain oxidative stress in amyloid beta(1-42) rat model of Alzheimer's disease. *Cell MolNeurobiol* 2014; 34:437- 449. <https://doi.org/10.1007/s10571-014-0028-y>

68. Bang JS, Oh da H, Choi HM, Sur BJ, Lim SJ, et al. (2009) Anti-inflammatory and antiarthritic effects of piperine in human interleukin 1 beta-stimulated fibroblast-like synoviocytes and in rat arthritis models. *Arthritis Res Ther* 2009; 11(2):R49.  
<https://doi.org/10.1186/ar2662>

69. R. Aruna, Sathiyarajeswaran P, Gopakumar K, Ramaswamy RS. Cardioprotective effects of kitchen culinaries mentioned in Siddha literature. *Journal of Pharmacognosy and Phytochemistry* 2014; 3(3):71-79.

70. Nirwane AM, Bapat A R. Effect of methanolic extract of *Piper nigrum* fruits in Ethanol-CCl4 induced hepatotoxicity in Wistar rats. *Der Pharmacia Lettre* 2012; 4(3):795-802.

71. Subedee L, Suresh RN, Jayanthi MK, Kalabharathi HL, Satish AM, Pushpa VH. Preventive Role of Indian Black Pepper in Animal Models of Alzheimer's disease. *Journal of Clinical and Diagnostic Research.* 2015 Apr; 9(4):FF01-FF04  
<https://doi.org/10.7860/JCDR/2015/8953.5767>

72. Ojewole JAO. Analgesic, Antiinflammatory and Hypoglycaemic Effects of Ethanol Extract of *Zingiber officinale* (Roscoe) Rhizomes (*Zingiberaceae*) in Mice and Rats. *Phytother. Res.* 2006; 20:764-772. <https://doi.org/10.1002/ptr.1952>

73. Sharma I, Gusain D, Dixit VP. Hypolipidemic and antiatherosclerotic effects of *zingiber officinale* in cholesterol fed rabbits. *Phytother Res* 1996; 10(6):517-518. [https://doi.org/10.1002/\(SICI\)1099-1573\(199609\)10:6<517::AID-PTR839>3.0.CO;2-L](https://doi.org/10.1002/(SICI)1099-1573(199609)10:6<517::AID-PTR839>3.0.CO;2-L)

74. Huang Q, Mastuda H, Sakai K, Yamahara J, Tamai Y. The effect of ginger on serotonin induced hypothermia and diarrhoea. *Yakugaku Zasshi* 1990; 110(12):936-942. [https://doi.org/10.1248/yakushi1947.110.12\\_936](https://doi.org/10.1248/yakushi1947.110.12_936)

75. Bliddal H, A Rosetzsky, P Schlichting et al. A randomised placebo controlled cross over study of ginger extract and ibuprofen in osteoarthritis. *Osteoarthritis cartilage* 2000; 8(1):9-12. <https://doi.org/10.1053/joca.1999.0264>

76. Yamahara J, Miki K, Chisaka T et al. Cholagogic effect of ginger and its active constituents. *J Ethnopharmacol* 1985; 13(2):217-225. [https://doi.org/10.1016/0378-8741\(85\)90009-1](https://doi.org/10.1016/0378-8741(85)90009-1)

77. Emig HM, The pharmacological action of ginger. *J Amer Pharm Ass* 1931; 20:114-116. <https://doi.org/10.1002/jps.3080200207>

78. Platel K, Srinivasan K. Influence of dietary spices or their active principles on digestive enzymes of small intestinal mucosa in rats. *International Journal of Food Sciences and Nutrition* 1996; 47(1):55-59. <https://doi.org/10.3109/09637489609028561>

79. Kasahara Y, Saito E, Hikino H. Pharmacological actions of *Pinellia* tubers and *zingiber* rhizomes. *Shoyakugaku Zasshi* 1983; 37(1):73-83.

80. Srivastava KC. Effect of onion and ginger consumption on platelet thromboxane production in humans. *Prostaglandins Leukot Essent Fatty Acids* 1989; 35(3):183-185. [https://doi.org/10.1016/0952-3278\(89\)90122-1](https://doi.org/10.1016/0952-3278(89)90122-1)

81. Atta AH, TA, Mouneir SM, Kamel GN, Alwabel A, Zaher S. Hepatoprotective Effect of Methanol Extracts of *Zingiber officinale* and *Cichorium intybus*. *Indian J Pharm Sci.* 2010 Sep-Oct; 72(5):564-570. <https://doi.org/10.4103/0250-474X.78521>

82. Shobana S, KA Naidu. Antioxidant activity of selected Indian spices. *Prostaglandins Leukot Essent Fatty Acids* 2000; 62(2):107-110. <https://doi.org/10.1054/plef.1999.0128>

83. Kobayashi M, N Shoji, Ohizumi Y. Gingerol, a novel cardiotonic agent, activates the  $Ca^{2+}$  pumping ATPase in skeletal and cardiac sarcoplasmic reticulum. *Biochim Biophys Acta* 1987; 903(1):96-102. [https://doi.org/10.1016/0005-2736\(87\)90159-3](https://doi.org/10.1016/0005-2736(87)90159-3)

84. Suekawa M, Aburada M, Hosoya E. Pharmacological studies on ginger. III. Effect of the spinal destruction on [6]-shogaol induced pressor response in rats. *J Pharmacobiodyn* 1986; 9(10):853-860. <https://doi.org/10.1248/bpb1978.9.853>

85. Anonymous. Standardisation of single drugs of Unani Medicine. Part IV, New Delhi: CCRUM; 2006.p229-233

86. Khan MM. *Tohfatal Momeneen*. Lucknow: Mutba Noval Kishore; 1846.40,56,116,136,168,170,188,202,211,243,246.

Journal of Drug Delivery & Therapeutics. 2022; 12(2-s):178-184

87. Haleem MA. *Mufradat azeezi*, New Delhi: CCRUM. Ministry of H & FW; 2009. p14,17,18,20,21,29-31,43,48,52,55,58,75,79,90,91,98,102, 104,107,117,118

88. Jafari M, Zarban A, Pham S, Wang T. *Rosa damascena* Decreased Mortality in Adult Drosophila. *J Med Food*. 2008; 11:9-13. <https://doi.org/10.1089/jmf.2007.546>

89. Arezoomandan R, Kazerani HR, Rasooli MB. The Laxative and Prokinetic Effects of *Rosa damascena* Mill in Rats. *Iranian Journal of Basic Medical Sciences* Jan-Feb 2011; 14(1):9-16.

90. Baniasad A, Khajavirad A, Hosseini M, r Shafei MN, Aminzadah S, Ghavi M. Effect of hydro-alcoholic extract of *Rosa damascena* on cardiovascular responses in normotensive rat. *Avecina journal of phytotherapy*, Jul-Aug 2015; 5(4):319-324.

91. Gholamhoseinian A, Shahouzehi B, Joukar S, Iranpoor M. Effect of *Quercus infectoria* and *Rosa damascena* on lipid profile and atherosclerotic plaque formation in rabbit model of hyperlipidemia. *Pak J Biol Sci* 2012; 15(1):27-33. <https://doi.org/10.3923/pjbs.2012.27.33>

92. Anonymous. The Unani pharmacopoeia of India. Part I. Vol V. New Delhi: Ministry of H & FW, Govt of India; 2007.p107,108

93. Prisilla DH, Balamurugan R, Shah HR. Antidiabetic activity of methanol extract of *Acorus calamus* in STZ induced diabetic rats. *Asian Pac J Trop Biomed* 2012; 2(Suppl 2):941-6. [https://doi.org/10.1016/S2221-1691\(12\)60341-4](https://doi.org/10.1016/S2221-1691(12)60341-4)

94. Wu HS, Zhu DF, Zhou CX, Feng CR, Lou YJ, Yang B, et al. Insulin sensitizing activity of ethyl acetate fraction of *Acorus calamus* L. in vitro and in vivo. *J Ethnopharmacol* 2009; 123:288-92. <https://doi.org/10.1016/j.jep.2009.03.004>

95. Tripathi AK, Singh RH. Clinical study on an indigenous drug vaca (*Acorus calamus*) in the treatment of depressive illness. *J Res Ayur Siddha* 1995; 16:24-34

96. Subathraa K, Poonguzhalai TV. In vitro studies on antioxidant and free radical scavenging activities of aqueous extract of *Acorus calamus* L. *Int J Curr Sci* 2012; 1:69-73

97. Palani S, Raja S, Kumar RP, Venkadesan D, Devi K, Sivaraj A, et al. Therapeutic efficacy of antihepatotoxic and antioxidant activities of *Acorus calamus* on acetaminophen- induced toxicity in Rat. *Int J Integ Biol* 2009; 7:39-44

98. Patel P, Vaghasiya J, Thakor A, Jariwala J. Antihypertensive effect of rhizome part of *Acorus calamus* on renal artery occlusion induced hypertension in rats. *Asian Pac J Trop Dis* 2012; 2(Suppl 1):6-10. [https://doi.org/10.1016/S2222-1808\(12\)60114-5](https://doi.org/10.1016/S2222-1808(12)60114-5)

99. Mamgain P, Singh RH. Control clinical trial of the lekhaniya drug vaca (*Acorus calamus*) in case of ischemic heart diseases. *J Res Ayur Siddha* 1994; 15:35-51

100. Prakash C. A note on the preliminary study on *Acorus calamus* L. in the treatment of bronchial asthma. *J Res Ayur Siddha* 1980; 1:329-330

101. Ghelani H, Chapala M, Jadav P. Diuretic and urolithiatic activities of an ethanolic extract of *Acorus Calamus* L rhizome in experimental animal models. *Journal of Traditional and Complementary Medicine* 2016; 30:1-6. <https://doi.org/10.1016/j.jtcme.2015.12.004>