

## Review Article

# *Dava al-Balgham*: One of the Traditional Iranian Medicine Products

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## Abstract

**Background and Aim:** Nowadays, overweight and obesity are considered as major risk factors for common disorders such as metabolic syndrome, non-alcoholic fatty liver diseases, type 2 diabetes, and cardio cerebral vascular disease. Medical advice for preventing these diseases includes measures such as weight loss with diet and exercise, blood sugar and lipids control, the rise of fiber, and finally antioxidants and vitamin E consumption. Iranian traditional medicine (ITM) is a holistic medicine that introduces several remedies for the prevention and treatment of diseases through nutrition and lifestyle modifications, and administration of herbal medicines. This study examines new articles on the uses of *Dava al-Balgham* tablets, one of the traditional Iranian medicine products in ITM texts.

**Materials and Methods:** Initially, the use of the combination drug, *Dava al-Balgham*, and its constituent herbs (*Nigella sativa*, *Zataria multiflora*, *Pistacia lentiscus*, and *Trachyspermum ammi*) in ITM sources were searched, and then new articles in the new medicinal and pharmacology studies and databases such as PubMed, Google Scholar, and SID about this combined drug and its constituent herbs, were collected and reviewed.

**Results:** Studies that have been carried out on this combined drug, have documented effects such as a reducing body mass index and abdominal circumference, reducing cholesterol and triglyceride levels, and reducing serum liver enzymes. Moreover, for herbs that make up this combination, effects such as antioxidant, hepatoprotective, lowering hepatic enzyme and lipid and glucose levels, improving digestive tract disorders such as bloating and dyspepsia have been reported.

**Conclusion:** According to the studies conducted on the combination drug *Dava al-Balgham* and its constituent herbs, the effects of this drug could prevent and treat diseases such as overweight, increased blood lipids, non-alcoholic fatty liver diseases and digestive problems, including dyspepsia and bloating.

**Keywords:** Persian Iranian medicine, *Dava al-Balgham*, *Nigella sativa*, *Zataria multiflora*, *Pistacia lentiscus*, and *Trachyspermum ammi*

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## Introduction

Nowadays, obesity and overweight are known as two of the most important risk factors for several chronic diseases such as non-alcoholic fatty liver, diabetes, polycystic ovary syndrome, hypertension and cardiovascular disease (1). The prevalence of obesity in industrialized and developing countries is increasing (2).

World Health Organization (WHO) reported the prevalence of overweight in adolescents in developing countries to be 16 % (3). This disorder is known to be the fifth leading cause of death in the world (4). Moreover, because of the prevalence of a sedentary urban lifestyle and the increasing consumption of fast foods, weight loss has become a major health issue for many societies. In addition to regular physical activities and the diet, classic medicine prescribes appetite suppressants and drugs with a mechanism to inhibit the absorption of fats and carbohydrates for weight loss (5). Many medical therapies, such as acupuncture, acupressure, aromatherapy and herbal therapies, have also presented certain recommendations to accomplish this goal (6). World Health Organization confirms the use of traditional medicine due to public interest in traditional medicine, and its safe and inexpensive services (7).

Experts of Iranian traditional medicine (ITM), dating back to thousands of years ago, have always recommended the prevention of illnesses by improving lifestyle and observing "the six principles of health," including climate, food and drinking, sleep and awakening, mobility and exercise, body cleansing of waste, and emotional issues (8). In the teachings of ITM, every organ of the body has a certain temperament, whose proper functioning depends on the moderate temperament of that particular organ. Treatment of diseases in ITM is based on normalizing the body and the limbs in their normal temperament (9).

From the perspective of ITM, obesity and overweight could be due to the abnormal accumulation of

phlegm in the body, which has a cool and wet temperament. Hence, warm and dry drugs that enhance metabolism and ingestion of substances are prescribed at this medical school for weight loss due to the cold temperament of overweight. (10) On the other hand, digestive disorders and accumulation of phlegm also lead to obesity and accumulation of undigested foods in the body (11).

Referring to ITM sources, examining various drugs, and using the experiences of certain professors of traditional medicine in the treatment of obesity and phlegm accumulation, we faced a drug called *Dava al Balgham*. This drug consists of four herbs, namely *Nigella sativa*, *Carum Cupticum*, *Pistacia lentiscus*, and *Zataria multiflora*. It has repeatedly been introduced in the reference books of pharmacology and therapies of ITM (12-14), and is made from available, affordable and indigenous Iranian sources. No side effect has been reported for it so far.

## Materials and Methods

Initially, the researchers identified and examined the plants from which this drug is made by investigating the authoritative pharmaceutical sources of ITM. Subsequently, the properties of the herbs that make up this drug were extracted from several books, including *AIQanon Fi Teb*, *Makhzan al Advieh*, *Al Shamil fi al Sanaiee Tebieh*, *Tohfah al Momenin*, which are the authoritative sources of the pharmacology of ITM. Moreover, new articles on the uses and properties of the herbs that make up this combination drug were searched alone and in combination with others in the databases of PubMed, Google Scholar and SID.

The search terms were the uses of these plants along with the expressions clinical trial studies, obesity and overweight, metabolic syndrome, diabetes, and liver diseases. Subsequently, we compared the uses of these herbs in new medicine and ITM. Due to the existence of enormous clinical human and animal studies on these plants, most of the human studies were cited in this article. In the final table, all human and animal studies have been presented on the plants that make up this product, and in the final table, human and animal studies conducted from 2000 to 2019 were have been indicated.

## Results and Discussion

*al.* investigated the effect of *Dava al Balgham* on the serum level of liver enzymes. The hepatic enzyme

**Table 1: pharmacological effects of *Dava al-Balgham* ingredients**

PLANT	Study	Pharmacological Effects and References
1 Nigella sativa	Human Studies	<ul style="list-style-type: none"> <li>Decreasing the lipid per-oxidation (cardioprotective)<sup>21-26, 31,32</sup></li> <li>Decreasing liver enzymes (Hepatoprotective)<sup>26</sup></li> <li>Decreasing BMI<sup>27</sup></li> <li>Decreasing blood glucose, FBS, HGB A1C<sup>19,28-33,48</sup></li> <li>Decreasing cardiometabolic risk factors<sup>28-33</sup></li> <li>Anti-inflammatory effect<sup>20</sup></li> <li>Lowering blood pressure<sup>21,22,28,47</sup></li> <li>Increasing the anti-oxidant defense system activity<sup>20,31</sup></li> </ul>
	Other Studies	<ul style="list-style-type: none"> <li>Anti-oxidant effects.<sup>18-20</sup></li> <li>Decreasing the lipid per-oxidation<sup>46</sup></li> <li>Decreasing liver enzymes<sup>46</sup></li> </ul>
2 Zataria multiflora	Human Studies	<ul style="list-style-type: none"> <li>Decrease the lipid per-oxidation(cardioprotective)<sup>36</sup></li> </ul>
	Other Studies	<ul style="list-style-type: none"> <li>Decreasing the lipid.<sup>34,35,49,50,51,55</sup></li> <li>Decreasing insulin level<sup>55</sup></li> <li>Prevent gastric ulcer and bleeding<sup>52</sup></li> <li>anti-inflammatory, antioxidant, and immunomodulatory effects<sup>35,53</sup></li> <li>Decreasing liver enzymes (Hepatoprotective)<sup>49,50,54,56</sup></li> <li>Increasing the anti-oxidant defense system activity<sup>53</sup></li> </ul>
3 Pistacia lentiscus	Human Studies	<ul style="list-style-type: none"> <li>Decreasing bilirubin level and liver serum enzymes<sup>39</sup></li> <li>Decreasing the lipid peroxidation (cardioprotective)<sup>37,39</sup></li> <li>Improving diabetic gastroparesis symptoms<sup>37,38</sup></li> </ul>
	Other Studies	<ul style="list-style-type: none"> <li>Decreasing the lipid peroxidation (cardioprotective)<sup>57,58</sup></li> <li>Decreasing Bilirubin level and liver serum enzymes<sup>57,59</sup></li> <li>Anti-inflammatory effects<sup>50</sup></li> <li>Prophylactic and therapeutic effects against gastric ulcers<sup>52</sup></li> </ul>
4 Trachyspermum ammi	Human Studies	<ul style="list-style-type: none"> <li>Decreasing functional dyspepsia<sup>40</sup></li> </ul>
	Other Studies	<ul style="list-style-type: none"> <li>Decreasing the lipid per-oxidation (cardioprotective)<sup>43,45,60</sup></li> <li>Decreasing liver enzymes(Hepatoprotective)<sup>61</sup></li> <li>Increasing the anti-oxidant defense system activity<sup>44</sup></li> <li>Anti-inflammatory effects<sup>61</sup></li> <li>Anti-oxidant and immunological effects<sup>61</sup></li> </ul>

In ancient ITM resources, the effects of *Nigella sativa*, *Zataria multiflora*, *Pistacia lentiscus*, and *Trachyspermum ammi* on improving the food digestion and flatulence, and strengthening the stomach and liver have been mentioned. In a review article of the year 2016, Zarshenas and his colleagues examined the beneficial plants in the treatment of liver diseases from the point of view of traditional Iranian medicine and new medicine. Furthermore, the anti-oxidant, antihyperlipidemic and gastrointestinal effects of the plants that make up this product have been proven (15).

In a clinical trial study conducted in 2018, Hormati *et*

ALT, weight and waist circumference in the drug recipient group decreased more than the placebo group (16). Emtiyazi *et al.* (2011) investigated the effect of (DAB) on the level of blood lipids in hyperlipidemic patients for six weeks, and indicated that the drug could decrease low-density lipoproteins (LDL) and cholesterol serum levels (17).

In a study conducted on overweight patients for three months in 2016, one of the groups received a diet based on the recommendations of the ITM. This group was administered an ITM drug named BMD that contained *Nigella sativa*, *Zataria multiflora*, *Pistacia lentiscus*, and *Trachyspermum ammi*, while another

group received the modern medicine diet with Orlistat. The group receiving the ITM diet and product exhibited more reductions in BMI (18).

*Nigella sativa* has anti-inflammatory, antioxidant, anti-diabetes, and hepatoprotective impacts, and contributes to the progression of NAFLD (18, 19, 20). In a clinical trial study conducted on type 2 diabetes patients for one year in 2017, *Nigella sativa* significantly reduced the level of serum cholesterol and blood pressure (21). Several other human studies have also investigated and recorded the hypolipidemic effects of *Nigella sativa* (22-25).

In an investigation carried out in 2018 to evaluate the effect of *Nigella sativa* oil on patients with fatty liver, serum levels of transaminases of the liver in the drug group were significantly reduced compared to the control group. The level of blood lipids and sonographic view of the liver also improved in the drug group compared to the placebo group (26). In 2017,

A clinical study that examined the effect of *Nigella sativa* on NAFLD patients for 12 weeks in 2017 indicated that ALT, AST, and BMI significantly decreased, and the ultrasonography of the liver improved (27). Furthermore, *Nigella sativa* has also reduced blood glucose levels, glycosylated hemoglobin, blood pressure, and metabolic syndrome factors in numerous other human interventions (28-33).

*Zataria multiflora* contains the active ingredients of thymol and carvacrol, which decrease blood cholesterol (34, 35). In a human intervention conducted in 2018, the effects of olive oil with the phenolic compounds of *Zataria multiflora* on human specimens were investigated. At the end of the cycle, cholesterol level decreased in the *Zataria multiflora* consumption group. The cardioprotective and antioxidant effects were discussed (36).

In 2018, a clinical study was conducted to evaluate the effect of *Pistacia lentiscus* on humans. The use of *Pistacia lentiscus* for six month in the intervention group significantly reduced blood glucose and insulin levels compared to the control group (37). In a triple-blind clinical trial carried out on patients with diabetic gastroparesis in 2017, *Pistacia lentiscus* remarkably reduced gastrointestinal symptoms, BMI, fasting blood sugar, and HbA1c (38).

In a research conducted on humans in 2007, the oral administration of *Pistacia lentiscus* powder confirmed its hepatoprotective and cardioprotective effects through decreasing serum total cholesterol, LDL, total cholesterol to HDL ratio, lipoprotein, serum glutamic oxaloacetic transaminase, and serum glutamic pyruvic transaminase (39).

A double-blind clinical intervention in 2017 was performed on 150 functional dyspepsia patients for eight weeks. The group receiving *Trachyspermum ammi* was compared with omeprazole and placebo groups. The results showed that gastrointestinal signs were significantly lower in the *Trachyspermum ammi* group than in the other two groups (40). Many botanical investigations that have recently been carried out have indicated several effects of *Trachyspermum ammi*, including its antioxidant effect, and its capability to reduce blood lipids and relieve stomach infections (41-43).

Given the increased prevalence of obesity, overweight, diabetes, cardiovascular diseases and metabolic syndrome, today, antioxidant factors and lipid lowering agents are proposed to prevent, control and treat the risk factors of metabolic syndrome. On the other hand, many studies have shown several effects such as the antioxidant effect, the reduction of blood glucose and lipids as well as blood pressure, and weight reduction for the plants that make up the drug. Moreover, in human studies conducted on the Dava al Balgham, this product has exhibited its potential to reduce the liver enzyme (ALT), serum cholesterol and LDL levels, weight loss and waist circumference. It seems that this drug is beneficial for patients with metabolic syndrome by helping them lose weight. Furthermore, it is capable of reducing abdominal circumference, and has antioxidant as well as hypolipidemic effects. Finally, this drug decreases blood glucose and liver enzyme, and is efficient in the prevention and treatment of obesity.

This product also boosts digestion, reduces bloating, and decreases the moisture content of the gastric mucosa by improving digestion in the stomach and, as a result, delivering food that is completely digested to the liver indirectly to a better functioning liver. Hence, it is efficient for the maintenance of the general health of the body

## Conclusion

According to the findings of this review study, *Dava al-Balgham* tablets could be used to treat chronic diseases such as non-alcoholic fatty liver, blood pressure, diabetes, and lipid disorders, particularly in patients with some types of gastrointestinal and dyspepsia problems. Moreover, since the hypoglycemic effects of *Nigella sativa*, *Zataria multiflora* and *Pistacia lenticus* have been reported in previous studies, further animal and human studies are required to investigate the effects of this drug on diabetic and overweight patients.

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## Conflict of Interest

The authors declare that they have no conflict of interest.

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