

Strengthening Healthy Saudi-habits Using Ajwain (*Trachyspermum ammi*) Seeds by In-Vivo Experiment on Digestive-system Bacterial-quantity at High-level Region

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Abstract

Ajwain seeds contain 50% thymol, 7% carvacrol, 35% terpinene, 25% para-cymene, pinene, and limonene. They have anti-bacterial and anti-spasmodic effects, also founding usually in healthy Saudi-habits (called Nanakhah) with cheap-price using in different ways. The aim was to prove the health protection quality of Ajwain it was tested at a high-level region; Taif, KSA to trace its effect on the bacterial quantity of buccal-cavity and digestive-system tract. The seeds samples were collected from original licensed stores, In-Vivo experiments were done twice daily for a week for each step. The bacterial-quantity method was by turbidity and inoculation using "Bacterial Modern Culture". The mean results of bacterial-quantity of buccal-cavity as chewing method at (before, during, and after) were (39.6, 17.5, and 4.6%). The using boiled water extract as a mouthwash was (38.8, 16.7, and 4.1%). The mean results of seeds swallowing on bacterial-quantity of digestive-system were (61.3, 32.5, and 4.5%); the mean results of using boiled water extract on bacterial-quantity of digestive-system were (61.8, 31.6, and 3.9%). It was clear that the effect of bacterial quantity was reduced by about half during the use and to the tenth after the trial period. It was concluded that its use can kill and reduce (bacterial-quantity of both buccal-cavity and digestive-system), that supporting individual health at high-level region. It was recommended that since it is very cheap and get easy, as well to use usually in healthy Saudi-habits at high-level region daily to clean the whole digestive-system that will support public health with cheap price.

Keywords: ajwain; in-vivo experiment; buccal cavity; digestive-system; bacterial-quantity; high-level region

Introduction:

Ajwain occurrence in India, Pakistan, Iran, its seeds are used food spice, cooking, baking biscuits, bread and bean plates [1]. It has thymol, the phenolic compound major, is bactericide, anti-spasmodic, and fungicide [2]. Its contain phenols (30-50% thymol, 1-7% carvacrol), mono-terpenes (20-35% -terpinene and 20-25% para-cymene, -pinene and limonene). Thymol is a bactericide and anti-spasmodic [3]. It contains pinene, cymene, limonene, terpinene, glycosides, and sterols had anti-inflammatory activities [4]. The phenol had anti-septic, used Indian medicine scheme as antibacterial [5], and anti-spasmodic [6]. 2-Isopropyl-5-methyl-phenol eradicate biofilm formation *Streptococcus* mutants [7]. Its oil had anti-bacterial to *Enterococcus faecalis* and *Streptococcus* mutants. Thymol had anti-bacterial, used for oral bacteria clinical management [8]. Its main constituent (71.06%), o-Cymene (3.37%), γ -Terpinene (3.83%), 2-methyl-5-(1-methylethyl)-phenol (0.51%). The extract showed bacterial inhibition (50% - 83%), it eradicate food-borne pathogenic bacteria [9]. Its natural vegetal bases, obligating several testified properties, ironic with talented bio-activity; it is an

extremely esteemed plant source [10]. Its oil-treated digestive-system illnesses, and anti-bacterial [9,11], because phenol mixes had bactericidal or bacteriostatic power [12]. It has strong food effects against many pathogenic bacteria ranked [13]. The aim of the work was using Ajwain seeds In-Vivo experiment by different healthy method on digestive-system bacterial-quantity at the high-level region, Taif, KSA. So that to prove health-protective characters, as well support strengthening healthy Saudi-habits using Ajwain Seeds.

Methodology:

- **Substitute area:** The clarified goals and methods were explained to healthy substitute-free persons without using any medicine type. They agreed on the condition that did not personal information be arrived at about them. The original Ajwain seeds samples were collected from original licensed stores at the high-level region, Taif, KSA [14].
- **In-Vivo experiment:** The experiment was done twice daily for a week for each step. Buccal-cavity: The first using five gm-washed

seeds for chewing, the second user (5 gm + 200 ml boiling water) was given boiled water extract as a mouthwash. Digestive-system: The first using five gm washed seeds for direct swallowing, the second user (5 gm + 200 ml boiling water) was given boiled water extract for direct drinking [15].

- **Bacterial-quantity method:** The samples included (mouth swabs and stools), were collected every two days from substitute persons for bacterial-quantity by the first via turbidity comparing using

"McFarland Control" and the second by inoculation using "Bacterial Modern Culture" [16].

- **Follow-up method:** The "Healthy Technique" was followed by observing the health of the buccal-cavity and digestive system by indications and symptoms [17].
- **Data analysis:** The results were compiled, was used a "Simple Excel Statistics Program" and was produced tables and graphs [18].

Results and discussion:

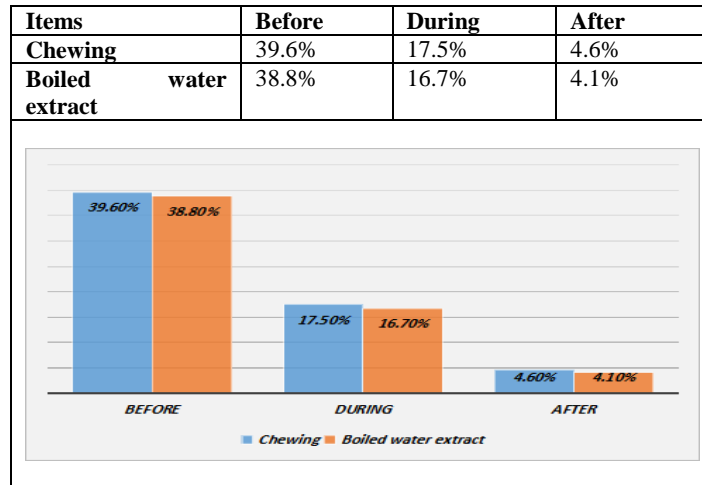


Table 1 and Graph 1: The average percentages of buccal-cavity bacterial-quantity for In-Vivo experiment

Table 1 and graph 1 displayed the average percentages of buccal-cavity bacterial-quantity for In-Vivo experiment, it was found Ajwain decreased from 39.6% to 4.6% for chewing and from 38.8% to 4.1%, the percent was decreased approximately nine for both uses, but the more effective was the boiled water extract. That found through the result that the presence of seeds and their use in healthy Saudi-habits adding them to

drinks and cooking might help reduce the percentage of bacterial-quantity of buccal-cavity. That indicated continue to use because of their good effect on individual health and public health, which indicated the determination of the healthy Saudi-habits. So use them daily because of their good health effects on the individual and are considered one of the herbal remedies from the high-level region [1-13].

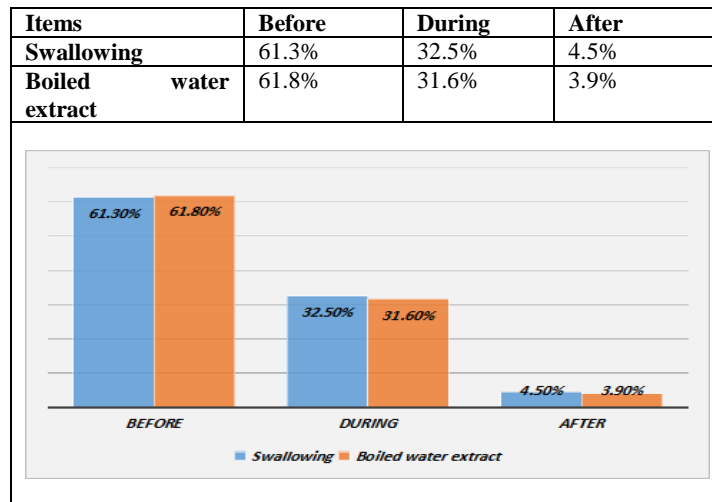


Table 2 and Graph 2: The average percentages of digestive-system bacterial-quantity for In-Vivo experiment

Table 2 and graph 2 displayed the average percentages of digestive-system bacterial-quantity for In-Vivo experiment, it was found Ajwain decreased from the percentage to less than about ten for both uses, it decreased from 61.3% to 4.5% for swallowing and from boiled water

extract 61.8% to 3.9%, the percent was decreased but the more effective was the boiled water extract. That found through the result that the use of seeds to drinks and cooking helps to reduce the percentage of bacteria so support individual health at high-level region [1-13].

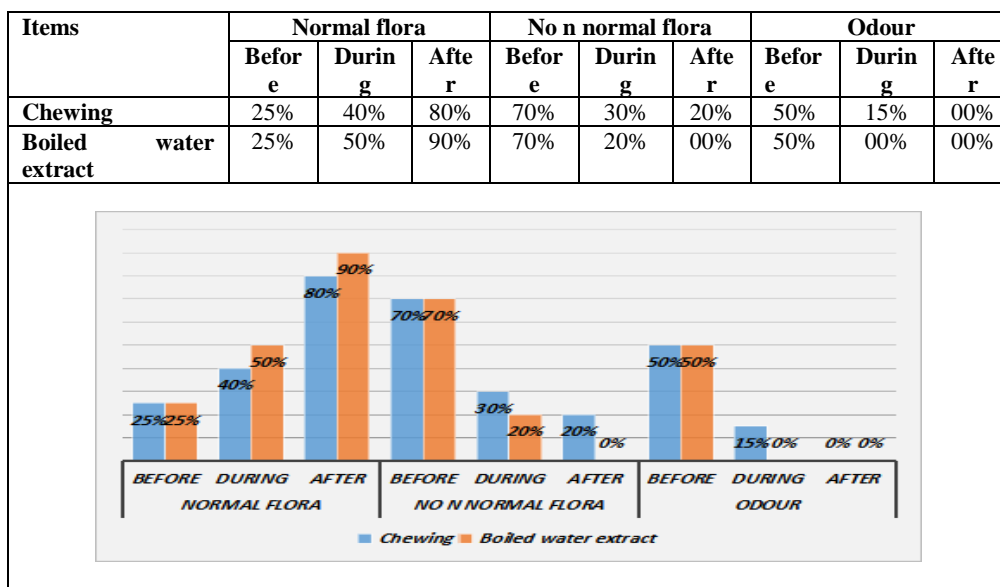


Table 3 and Graph 3: The average degree of buccal-cavity bacterial-quantity healthy technique for In-Vivo experiment

Table 3 and graph 3 displayed the average degree of buccal-cavity bacterial-quantity healthy technique for In-Vivo experiment, the results of Ajwain was found in modifying both of all buccal-cavity signs were decreased. That was by resulted in degrees of normal flora, non-normal flora, and odour. What was the best-boiled water extract cleared from a faster degree than chewing seeds? This indicated the importance of the

contents of the seeds and their effect on the bacterial quantity of buccal-cavity. Which indicated the effectiveness of the basic components on the individual health and public health at high-level regions. It indicated the persistence of the healthy Saudi habits to use seeds to maintain a good state of health in the buccal-cavity [1-13].

Items	Normal flora			No normal flora			Gaseous			Spasms			Digestive process		
	Before	During	After	Before	During	After	Before	During	After	Before	During	After	Before	During	After
Swallowing	50%	50%	70%	20%	10%	00%	15%	10%	00%	20%	10%	00%	20%	20%	40%
Boiled water extract	50%	70%	90%	20%	00%	00%	15%	00%	00%	20%	00%	00%	20%	40%	70%

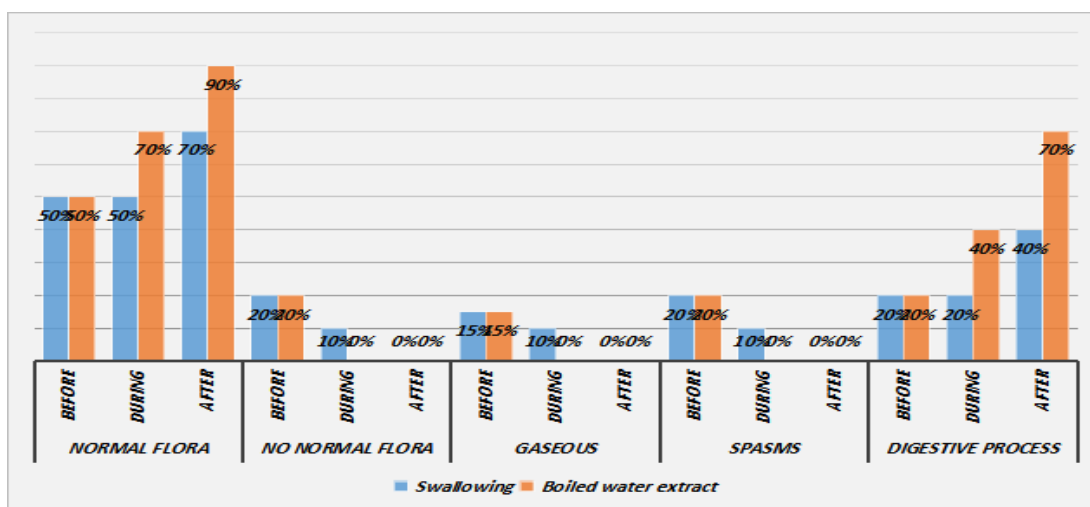


Table 4 and Graph 4: The average degree of digestive-system bacterial-quantity healthy technique for In-Vivo experiment

Table 4 and graph 4 displayed the average degree of digestive-system bacterial-quantity healthy technique for In-Vivo experiment, the results of Ajwain was originated in familiarizing both of all digestive-system

signs were reduced, also by flora, and digestive-system signs, as well that finest by boiled water extract. This chooses the rank of the fillings of seeds and their bacterial-quantity-digestive-system result. Which designated the

efficiency of the basic mechanisms on the individual health and public health at high-level regions. It indicated the perseverance of the healthy Saudi habits to permanently use seeds to uphold a good state of the digestive system [1-13].

Conclusion: That concluded it was the first time at Taif, KSA; as well using could kill and reduce (bacterial-quantity of buccal-cavity and bacterial-quantity of digestive-system), that supporting individual health at high-level region.

Recommendation: Since it is very cheap and easy to get, as well it is recommended to use usually in healthy Saudi-habits at high-level region daily to clean the digestive-system from (buccal-cavity to intestines), that will support public health with cheap price.

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