

Tinnitus in Avicenna's Canon of Medicine

Dear Editor

Tinnitus is the sensation of hearing continuous or intermittent sounds, when there is no external or mechanical source. A buzzing, ringing, or hissing sound is frequently heard near the head. Its prevalence is estimated at 10-15% worldwide. It is more common in men than in women and increases with age.^{1,2} Tinnitus seems not to produce a traveling wave in the inner ear and so does not follow the external sound stimulation process. Tinnitus, particularly when it is persistent and chronic, can have a significant influence on one's quality of life.¹

It is a symptom, not a disease, and is most usually caused by abnormalities in the auditory system, which are mainly caused by unknown factors.³

As the underlying causes are not clear, the treatment of tinnitus is vastly challenging.¹ Therefore, the goals of its treatment include managing identified comorbidities and alleviating the effects of tinnitus on quality of life rather than achieving an absolute cure.²

Famous Persian physicians such as *Rhazes*, *Haly Abbas*, *Avicenna*, and *Jorjani* had great contributions to the flourishing of medical science during the Islamic Golden Age (9th to 12th centuries A.D).⁴

Avicenna (Ibn Sina) [980-1032 AD], who is regarded as the father of early modern medicine, accurately described the concepts of diagnosis and treatment of diseases associated with various organs of the body in his magnificent book "*Al-Qānūn fī al-Tibb*" (The Canon of Medicine). The Canon of Medicine was an academic encyclopedia at most European Medical Universities from the 13th to 18th centuries.⁵

Avicenna addressed ear anatomy and various otologic problems in the third volume of this book. He defined the etiology, clinical manifestations, and treatment options of tinnitus in detail using the terms *Tanin and Davi*. In his point of view, these subjective sounds are generated by the movement of air inside the ears without any external stimulation similar to the tinnitus mechanism mentioned above.⁶ Based on humoral theory, *Avicenna* described many organ dysfunctions that may result from an imbalance of the body's humor or dystemperament. Moreover, he believed in the immense integrity of the whole body and its various organs.⁶ Accordingly, *Avicenna* classified the sources of airflow in tinnitus as intracranial factors including any injury and trauma, inflammation, pus discharge, the presence of parasitic worms in the ear and other organs of the skull, and poor brain activity.

Fever, severe vomiting, bloating foods, hunger, malnutrition, accumulation of abnormal humor in the blood, and malfunction of other participatory organs such as the stomach were mentioned as the extracranial causes of this unpleasant sensation.⁶

Avicenna also thoroughly explained if the origin of tinnitus is intracranial, patients often experience continuous sounds similar to rustling leaves. However, participatory organs can make intermittent sounds that resemble boiling water.⁶

According to the Canon of Medicine, tinnitus management is centered on diet, lifestyle modification, and topical pharmacological therapy. Avoiding intense movement, shouting, vomiting, constipation, overeating, resting on a full stomach, and exposure to the sun and hot weather are recommended by *Ibn Sina* to lower the incidence of tinnitus.⁶

In the second volume of the Canon of Medicine as well as the third one, *Avicenna* described numerous medicinal herbs (individually or in combination) for the treatment of tinnitus.⁶ The majority of them are given as ear drops in the form of oil or extract, as shown in table 1.

This brief manuscript presented clinical approaches and treatment strategies, in particular lifestyle changes and herbal remedies for tinnitus, drawn from *Avicenna's* Canon of Medicine. The accurate observations of *Avicenna* suggest a more comprehensive diagnostic perspective on many diseases.

Table 1: Natural topical remedies suggested for tinnitus in "The Canon of Medicine" book

Scientific name	Common name	Name in "Canon"	Parts used	Forms
<i>Allium cepa</i>	Onion	<i>Basal</i>	Bulb	Ear drops/extract
<i>Allium schoenoprasum</i>	Chives	<i>Koras</i>	leaves	Ear drops/extract
<i>Amygdalus communis</i>	Sweet almond	<i>Lowz</i>	Seeds	Ear drops/oil
<i>Amygdalus communis L.var. amara</i>	Bitter almond	<i>Lowz-ol-mor</i>	Seeds	Ear drops/oil
<i>Artemisia absinthium</i>	Common wormwood	<i>Afsantin</i>	Leaves and flowers	Ear drops/extract
<i>Iris spp.</i>	Iris	<i>Susan/Irsa</i>	Flowers	Ear drops/oil
<i>Laurus nobilis</i>	Bay Laurel	<i>Hab-ol-qar</i>	Seeds	Ear drops/oil
<i>Origanum vulgare</i>	Origany	<i>Marzanjush</i>	Aerial parts	Ear drops/extract
<i>Rosa damascena</i>	Damask rose	<i>Vard</i>	Flowers	Ear drops/oil
<i>Ruta graveolens</i>	Rue	<i>Sodab</i>	Aerial parts	Ear drops/extract

However, the knowledge of medieval physicians such as *Ibn Sina* should be scientifically investigated and confirmed in animal models and clinical trials to extend new natural remedial options for tinnitus and other hearing disorders.

Keywords • Tinnitus • Medicine • Traditional • Ear • Hearing

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M.T and M.A: Study concept, data gathering, and drafting; All authors have read and approved the final manuscript and agree to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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