Pistachio skin jam: an unheard-of jam to make

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Abstract

Pistachio skin jam has been a traditional food in some Iranian regions for centuries, but scientific research on its composition and properties is limited. This paper aims to introduce the jam, address preparation challenges, and offer health tips. In Iran, the jam is made by boiling pistachio skins with hot water, sugar, rose water, and cardamom. This article details methods for removing pesticides from the skins to ensure their safety. The soft outer shell of the pistachio is a significant by-product, with about 400,000 tons produced annually in Iran. Disposing of this by-product seems wasteful, especially given global food shortages and limited water resources for cultivating pistachio trees in arid regions. The lack of attention to pesticide removal from pistachio skins likely stems from the perception of this by-product as waste.

Keywords: Food; Pistachio, Culture, Health, History

Pistachio skin jam has been a traditional delicacy in some regions of Iran for centuries, but scientific research on its composition and properties is scarce. This paper seeks to introduce this food, explore preparation challenges, and offer health tips. Pistachios consist of several components, including the kernel, internal skin, soft outer shell, and hard outer shell [1]. The soft outer shell of the pistachio is commonly known as the pistachio skin or testa [2]. Pistachio skin is an edible seed coat that can be red-purple or yellowish. It is traditionally used to make jam, which is particularly popular in some Iranian cities like Damghan, though it remains largely unknown in other regions. Despite the lack of scientific studies on pistachio skin jam, it has been consumed for centuries in parts of Iran. To prepare the jam, the skins are peeled and soaked in cold water for several hours, then boiled with hot water, sugar, rose water, and cardamom, with sugar added in an amount equal to the weight of the skins. Once the mixture thickens, saffron is added and allowed to cool. To prevent crystallization, some add lemon juice or citric acid at the end. This jam is soft, delicious, sweet, and uniquely flavored. Due to widespread pesticide use, some locals boil pistachio skins up to three times, discarding the water each time to eliminate pesticides, while others opt for organic skins from natural orchards. Some remove the outer layer of the pistachio skin, which absorbs more pesticides, using only the fleshy part underneath. Nearly 60% of the pistachio by-product consists of the soft outer shell, with around 400,000 tons produced annually in Iran [2]. This by-product has several medicinal benefits [3-6]. It is rich in phenolic compounds (PCs) that serve as antioxidants, neutralizing free radicals in the body [7]. It also contains anti-inflammatory compounds like gallotannins (tannic acid) that can reduce total cholesterol and blood pressure while boosting the immune system [8]. Myricetin, found in pistachio skin, possesses antimicrobial and antioxidant properties. Research indicates it offers neuroprotection against Alzheimer's, Parkinson's, Huntington's diseases, and amyotrophic lateral sclerosis [9]. Quercetin, a flavonoid found in pistachio skin, provides numerous health benefits, including protection against heart disease and cancer, as well as stabilizing histamine-releasing cells, thereby exhibiting antihistamine properties [2, 10]. It is believed that roasting, boiling, and bleaching pistachios may degrade bioactive compounds and diminish some of the health benefits associated with this product [2]. Research on the health benefits of pistachio skin jam is limited, necessitating further studies to understand this food better. Its specific health advantages and potential uses have not been sufficiently explored, mainly because it has traditionally been viewed as waste. Disposing of this primary by-product from pistachio orchards seems wasteful, especially amid the current food shortage crisis and limited water resources in arid regions suitable for growing pistachio trees. Additionally, pesticides are commonly used to manage and eliminate pest populations in farms and orchards [11]. Iran's National Institute of Health Research and the Department of Health Sciences and Nutrition at the Medical Sciences Academy propose six key strategies to reduce pesticide residues in agricultural products. These include promoting organic farming, improving

monitoring of pesticide and toxin imports, upgrading laboratories for accurate residue assessment in key crops like pistachios, educating farmers on proper pesticide use, reviewing existing regulations, establishing product identity cards, and enhancing oversight [12]. More research is needed to effectively eliminate residual pesticides from pistachio skins and to enhance their usability as a by-product of pistachio orchards. Current methods like roasting, boiling, and bleaching may compromise the bioactive compounds and health benefits associated with pistachio skins [13]. More research is needed to reduce residual pesticides on pistachio skins and enhance the use of this key by-product from pistachio orchards.

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