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Reasons for Regulating Smokeless Tobacco in Uzbekistan

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Abstract Smokeless tobacco, particularly nasvay, poses significant public health concerns in Uzbekistan. Despite its widespread use and cultural significance, nasvay consumption is associated with various health risks, including oral cancer, cardiovascular diseases, and addiction. This abstract highlights the urgent need for regulatory measures to control the production, sale, and consumption of nasvay in Uzbekistan. The reasons for regulation include protecting public health, reducing healthcare costs, preventing youth initiation, and addressing socio-economic disparities. Evidence-based policies, such as taxation, advertising restrictions, health warnings, and cessation support, can effectively mitigate the adverse effects of nasvay use. Implementing comprehensive regulations aligned with international best practices is essential to combat the growing burden of smokeless tobacco-related diseases and promote public well-being in Uzbekistan.

Keywords Tobacco control, Smokeless tobacco, Persistent Organic Pollutants, Cancer

1. Introduction

Smoking is one of the main and long-standing health and human problems worldwide. According to the World Health Organization, tobacco is a major risk factor for the development of noncommunicable diseases (NCDs): 41 million people die from NCDs every year, accounting for 74% of all deaths worldwide. Interestingly, 86% of all NCDs deaths occur in low- and middle-income countries [1].

More than 8 million people die from tobacco every year, with more than 7 million of these deaths being the result of direct tobacco use and about 1.3 million from second-hand smoke by non-smokers [2]. According to the research tobacco kills up to half of its users who do not quit and a major cause of various deadly diseases, including cancer, cardiovascular diseases, and respiratory diseases [3,4].

There are many different smokeless tobacco products and methods of use around the world. There are an estimated 346 million smokeless tobacco users worldwide, most of whom (86%) live in the Southeast Asian region. Approximately 4% of young people ages 13-15 worldwide use smokeless tobacco products; As with adults, most smokeless tobacco users ages 13-15 reside in the Southeast Asian region [5].

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This study aims to identify types and concentrations of Persistent Organic Pollutants (POPs) in smokeless tobacco, thus contributing to assessing cancer risks associated with smokeless tobacco use in Uzbekistan.

2. Materials and Methods

We conducted an experiment on the content of pesticides in a crop purchased randomly at retail outlets in the city of Tashkent.

We analyzed two samples of ground and granulated nasvay (each 20 grams) (Photos 1 A and B) in the toxicohygienic laboratory of the Department of Sanitary and Epidemiological Monitoring of the Head Medical Department of the President Administration of the Republic of Uzbekistan. The analysis was carried out using Agilent Technology gas chromatography (GCh - which today helps to determine the quality and purity of food, air, water, and pharmaceuticals, as well as helps in testing controlled substances in criminal investigations and sports competitions) 7890B/MS 7000D (gas chromatography-mass spectrometer).

We analyzed the pesticide concentrates: α-hexachlorocyclohexane (α-HCG), β-hexachlorocyclohexane (β-HCG), gamma-hexachlorocyclohexane (γ-HCG), hexachlorobenzene, dichlorodiphenyldichloroethylene (DDE), dichlorodiphenyldichloroethane (DDD) and dichlorodiphenyltrichloroethane, commonly known as DDT.

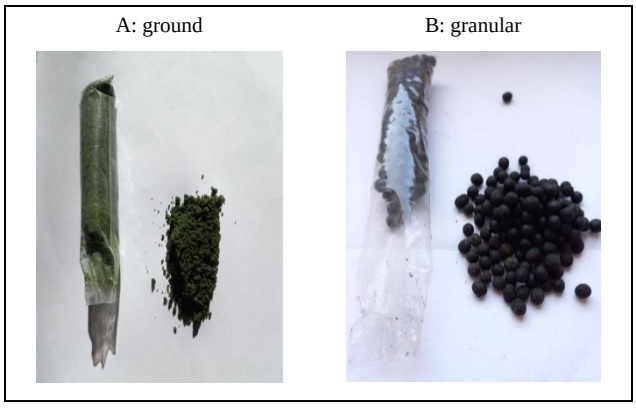

Figure 1. Two types of nasvay

3. Results and Discussions

According to laboratory analysis in Table 1 and 2, both types of nasvay are very dangerous not only for humans, but also for the ecology of Uzbekistan.

We found that the main pollutants of smokeless tobacco are gamma-hexachlorocyclohexane, hexachlorobenzene and DDT. These organic contaminants in smokeless tobacco may have been formed by the direct use of pesticides in tobacco cultivation or some products during preparation. The results of this study expand our understanding of the carcinogens contained in smokeless tobacco, helping to assess risks and formulate urgent health policies related to the use of smokeless tobacco in the country.

The high alkaline pH characteristic of the unpackaged version of nasvay can lead to significant damage to the oral mucosa at the place of use of the product, which will lead to tissue necrosis and persistent inflammation and potentially contribute to the absorption of toxicants and carcinogens. One of the main features of using nasvay is that the user swallows saliva with nasvay residues after each use, since to use nasvay it is necessary to put it under the tongue, and this, in turn, will lead to salivation faster than usual and precancerous lesions of the oral cavity, such as oral leucoplakia [6,7].

The main document prohibiting or calling for the reduction of the use of pesticides is the Stockholm Convention on Persistent Organic Pollutants, adopted in Stockholm on May 22, 2001. It should be noted that the Republic of Uzbekistan joined the Stockholm Convention on Persistent Organic Pollutants on September 26, 2019, but did not sign it [8].

Further countermeasures.

It is very difficult to regulate the turnover of our products, since there is no specific government body that regulates the production, technology, safety, and quality of the product produced.

We believe that the Government of Uzbekistan and the Ministry of Health should pay special attention to the following recommendations:

1. Strengthen the system of promoting a healthy lifestyle, especially among the younger generation (schools, families, parks, and other public places).
2. To develop and approve as soon as possible an action plan to reduce smoking among the population of nasvay and other types of tobacco users.

Table 1. Concentration of Persistent Organic Pollutants (A-Ground form)

A-Ground form					
Compound	Transition	Rotation time (min)	Response Area	Final conclusion	Units
α-hexachlorocyclohexane (α-HCG)	218.9->183.0	6.129	523234	276.9025	ng/ml
β-hexachlorocyclohexane (β-HCG)	218.9->183.0	6.129	Not detected	Not detected	ng/ml
gamma-hexachlorocyclohexane (γ-HCG)	180.9->145.0	6.129	2431429	2499.802	ng/ml
hexachlorobenzene (HCB)	283.8->213.9	6.129	305750741	66404.7313	ng/ml
dichlorodiphenyldichloroethylene (DDE)	180.9->176.2	9.781	Not detected	Not detected	ng/ml
dichlorodiphenyldichloroethane (DDD)	235.0->165.2	10.449	Not detected	Not detected	ng/ml
dichlorodiphenyltrichloroethane (DDT)	235.0->165.2	10.449	3531	3.5545	ng/ml

Table 2. Concentration of Persistent Organic Pollutants (B-Granulated form)

B-Granulated form					
Compound	Transition	Rotation time (min)	Response Area	Final conclusion	Units
α-hexachlorocyclohexane (α-HCG)	218.9->183.0	6.129	269706	143.1971	ng/ml
β-hexachlorocyclohexane (β-HCG)	218.9->183.0	6.129	Not detected	Not detected	ng/ml
gamma-hexachlorocyclohexane (γ-HCG)	180.9->145.0	6.129	1053091	1083.2377	ng/ml
hexachlorobenzene (HCB)	283.8->213.9	6.129	222294576	48278.8722	ng/ml
dichlorodiphenyldichloroethylene (DDE)	180.9->176.2	9.559	Not detected	Not detected	ng/ml
dichlorodiphenyldichloroethane (DDD)	235.0->165.2	10.443	Not detected	Not detected	ng/ml
dichlorodiphenyltrichloroethane (DDT)	235.0->165.2	10.443	1422	3.2115	ng/ml

3. Equate nasvay to cigarettes and approve it with regulatory documents.
4. Implement telephone consultation lines on tobacco cessation.
5. Develop and implement regulatory legal acts on traditional tobacco business (production, packaging, storage, and sale).

4. Conclusions

Improving the health of the population is one of the main goals of each country's health policy. Progress in the health care system can be seen significantly compared to recent years (in 2023, the law "On limiting the distribution and use of alcohol and tobacco products" was adopted), but Uzbekistan still faces problematic aspects of public health [9]. These include a high burden of disease due to the increasing prevalence of NCDs, especially cardiovascular diseases, cancer, and diseases leading to premature death and disability. Behavioural and metabolic factors continue to dominate among the main characteristics of all risks, which indicates the constant improvement of effective tobacco control measures [10].

The consumption of pesticides will lead to malignant neoplasms such as cancer of the esophagus, stomach, and pancreas, and may contribute to genetic, mental, cardiovascular diseases and chronic hypertension. There is enough information that the use of nasvay leads to inflammation of the mucous membrane of the mouth and gums, gum atrophy, caries, premature tooth loss.

The next steps of our research will be a deep understanding of why smokers prefer nasvay, and we plan to analyze more samples in all regions of Uzbekistan and conduct a mixed study among men diagnosed with stomach cancer.

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