

pests and diseases. Additionally, nanomaterials can act as nanosensors, monitoring environmental conditions and optimizing growth parameters to maximize plant productivity [2].

Ensuring the quality and safety of medicinal plants is essential for their effective utilization. Nanosensors offer sensitive and rapid detection methods for assessing the purity, potency, and authenticity of plant-derived products. Nanotechnology-based sensing platforms, such as biosensors and nanoprobe, enable the detection of specific bioactive compounds, heavy metals, and contaminants in plant samples. These nanosensors provide real-time monitoring, enabling quality control throughout the production process and ensuring consumer safety [3].

The integration of nanotechnology in the production of medicinal plants offers numerous benefits. It allows for the efficient utilization of plant resources, enhanced bioavailability of active compounds, improved crop yields, and precise quality control. Nanotechnology-based approaches also promote sustainable agriculture by reducing the reliance on chemical fertilizers and pesticides. However, certain challenges need to be addressed, including the potential toxicity of nanomaterials, regulatory considerations, and cost-effectiveness of nanotechnology-based processes.

### **Conclusion**

Nanotechnology has ushered in a revolution in the production of medicinal plants by providing innovative solutions to enhance cultivation, extraction, and delivery processes. The applications of nanotechnology, such as nanomaterial-based delivery systems, nanoparticle-mediated plant growth enhancement, and nanosensors for quality assessment, have the potential to significantly improve the efficiency, bioavailability, and safety of plant-derived therapeutic compounds. Further research and development in nanotechnology will pave the way for sustainable and innovative approaches in medicinal plant production.

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## **THE EFFECT OF ENVIRONMENTAL NICOTINE POLLUTION ON REGULATING BLOOD GLUCOSE BALANCE IN DIABETICS**

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**Abstract:** This report explores the potential impact of environmental nicotine pollution on the regulation of blood glucose balance in individuals with diabetes. Nicotine, a highly addictive substance found in tobacco products, is not only harmful to human health but can also contaminate the environment. Studies have indicated that exposure to environmental nicotine pollution may have adverse effects on metabolic processes, including glucose homeostasis. This report reviews the existing literature to examine the potential mechanisms through which environmental nicotine pollution may influence blood glucose regulation in individuals with diabetes. Additionally, it discusses the implications of these findings and emphasizes the importance of addressing nicotine pollution as a public health concern.

**Key words:** environmental nicotine pollution, blood glucose balance, diabetes, metabolic disorders, tobacco smoke, air pollution.

### Introduction

Nicotine, a potent stimulant found in tobacco products, poses significant health risks to both smokers and non-smokers. Cigarette smoke releases a range of harmful substances into the environment, including nicotine, which can contaminate indoor and outdoor spaces. This report aims to investigate the potential effects of environmental nicotine pollution on the regulation of blood glucose balance in individuals with diabetes. Understanding the relationship between nicotine pollution and glucose control is crucial for addressing the broader public health implications of tobacco smoke exposure.

### Results and discussion

Several studies have suggested a potential link between environmental nicotine pollution and disrupted blood glucose regulation in individuals with diabetes. Nicotine can activate nicotinic acetylcholine receptors (nAChRs) in pancreatic beta cells, which are responsible for insulin secretion. Chronic exposure to nicotine may lead to impaired insulin production and secretion, contributing to glucose dysregulation. Moreover, nicotine exposure has been associated with insulin resistance, a key feature of type 2 diabetes, which further exacerbates blood glucose imbalances. Additionally, nicotine-induced oxidative stress and inflammation can interfere with insulin signaling pathways, leading to impaired glucose uptake and utilization [1-2].

The impact of environmental nicotine pollution on blood glucose control in individuals with diabetes has important public health implications. Diabetes is a global epidemic, and its proper management is crucial for preventing complications and improving quality of life. Environmental exposure to nicotine in various settings, such as homes, workplaces, and public spaces, may exacerbate glucose dysregulation in susceptible individuals. Efforts to reduce nicotine pollution and tobacco smoke exposure through smoke-free policies, smoking cessation programs, and public awareness campaigns can help mitigate these adverse effects on blood glucose balance and overall health Fig. 1 shows us how nicotine affects energy balance. Is it a friend or a foe? [3].

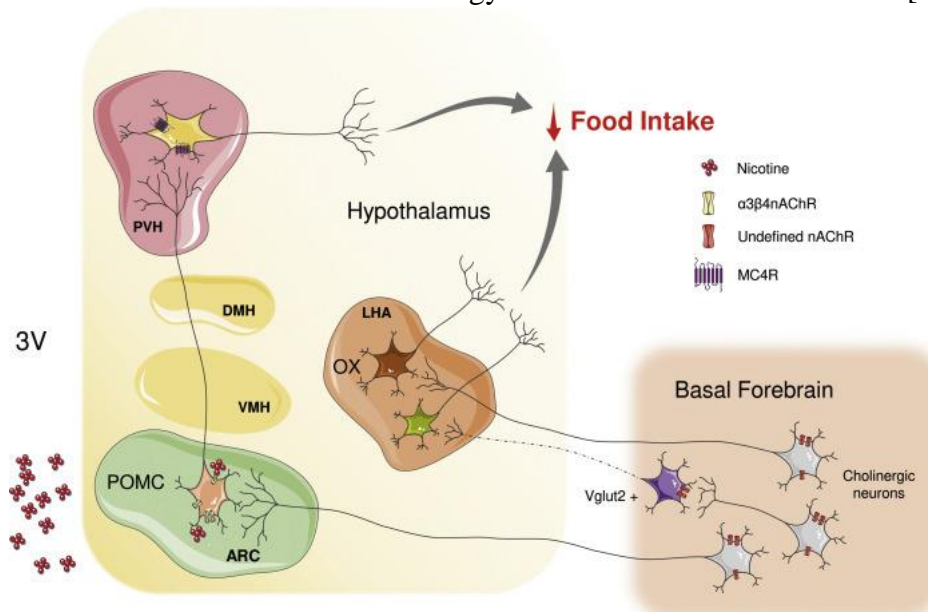


Fig. 1. Nicotine accumulation's effects [3].

Addressing environmental nicotine pollution requires a comprehensive approach that involves policy interventions, public education, and further research. Implementing and enforcing smoke-free regulations in indoor and outdoor spaces can significantly reduce nicotine pollution and protect vulnerable populations, including individuals with diabetes. Additionally, promoting smoking cessation programs and supporting tobacco control initiatives can have a positive impact on both individual and environmental health. Further research is needed to better understand the mechanisms underlying the relationship between environmental nicotine pollution and blood glucose regulation, as well as to explore potential preventive and therapeutic strategies.

### **Conclusion**

Environmental nicotine pollution resulting from tobacco smoke exposure has the potential to disrupt blood glucose balance in individuals with diabetes. Chronic exposure to nicotine can interfere with insulin secretion, promote insulin resistance, and induce oxidative stress and inflammation, all of which contribute to impaired glucose regulation. Recognizing and addressing the impact of environmental nicotine pollution on blood glucose control is essential for public health efforts in diabetes management. Strategies such as smoke-free policies, smoking cessation programs, and continued research are crucial for mitigating the adverse effects of nicotine pollution and improving the well-being of individuals with diabetes.

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## **ВОЗМОЖНОСТИ ПЛАТФОРМЫ «АНАSLIDES» ДЛЯ СОЗДАНИЯ НАГЛЯДНЫХ СРЕДСТВ ОБУЧЕНИЯ**

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**Аннотация:** В данной работе рассматриваются вопросы, связанные со значимостью современных наглядных средств обучения и практическим использованием одного из их видов – учебных презентаций, разработанных с использованием платформы «AhaSlides».

**Ключевые слова:** Ahaslides, учебных презентаций, Google Slides, Microsoft PowerPoint.

### **Введение**

Наглядность – один из принципов обучения, «основанный на показе обучающимся конкретных предметов, процессов, явлений при освоении ими учебного содержания для лучшего его усвоения [1]». Актуальность использования наглядных средств обучения в современном образовании бесспорна. Важно то, что средства должны быть современными, отвечать запросам обучающихся, выросших в эпоху становления цифрового общества. Информирование, знакомство с новым материалом, структурная поддержка лекции не мыслима без учебной презентации. Она дает возможность визуализации учебного материала, чем способствуют эффективному его усвоению, улучшая его восприятие и удерживая внимание обучающихся.

### **Результаты и обсуждение**

Учебные презентации являются наглядными средствами обучения. Они включают в себя графические элементы, текст, мультимедийные компоненты. Их использование позволяет педагогам сделать информацию более доступной и понятной, сократить время для объяснения, обеспечивает структурированное и последовательное представление информации, что важно не только для лекции в ВУЗе, но и для любого занятия, воспитательного мероприятия. Благодаря дизайну, цветовому оформлению, анимациям, презентации могут сделать учебный материал более информативным и запоминающимся. Они позволяют использовать техники визуальной метафоры.

Существует множество инструментов для создания презентаций: Microsoft