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**CHEMISTRY OF ODORS. SMELLS OF THE MEDICAL
INDUSTRY**

In this work, we want to show one unremarkable side of our life, but it plays an important role in many of its manifestations. The nature of the smell keeps many secrets today. But thanks to the legendary scientists, we know enough about it to use smells in our lives. They steadily hold positions in the perfume dimensional, food, military and agricultural industries. There are even separate disciplines for the study of the beneficial properties of odors for humans such as aromatherapy and aroma marketing, the smell signaling.

1. What is the smell. The process of smell.

Smell - specific feeling of presence at air of the flying odorous substances found by the chemical receptors of sense of smell located in a nasal cavity of animals and people.

Sense of smell is one of the so-called distant sensory systems, which take information from some remote objects. Actually, this information represents certain flying molecules which have to get at first with air into our nasal cavity, then be dissolved in slime, and then work on olfactory receptors. Therefore, it turns out that substance's odorants (that is those which cause a smell) have to be quite small and water-soluble. As a rule, it so.

Our olfactory receptors are located not all over the nasal cavity, but only in its uppermost part. There is a zone of several square centimeters,

where special nerve cells are located, which specialize in the perception of odorants.

2. The history of the classification of odors.

For centuries, mankind has been tormented by the question: what are the primary smells? Here scientists looked at the taste system, where there is a sour, sweet, bitter and salty taste. The same analogy was expected from smells and, in principle, until the moment of studying the genes, the following classification was formed, the invention of which was assigned to Davis Montkrifore and Eymur.

Eymur derived this classification due to empirical methods of analyzing substances. As a result of his experiments, he got that there are 7 basic odors: camphor (camphor), musky (pentadecanolactan), floral (phenylmethyl ethyl carbinol), mint (menthol), ethereal (dichloroethylene) pungent, sharp (formic acid), putrid (butyl mercaptan). And all other smells are only derivatives in various ratios of primary smells.

But over time, with a great scientific interest in genes, it turned out that, as a protein, the olfactory receptor constitutes about 5% of human DNA. It means that the sense of smell is very significant in terms of evolution. Later It became clear that about four-hundred genes of the body are in working condition and each of them contains information about one single olfactory receptor - a protein molecule that reacts with odorous substances. And in 2004 for these researches the Nobel Prize was handed to the American scientists Richard Axel and Linda Buck. Their researches gave rise to odor transfer technology. The set of attempts have been made to create machines to imitate odors. For example, in 2000 the DigiScents company presented the device under the name ISmell developed for imitation of the smell transferred on the Internet. The device contained a cartridge with 128 "main smells", which were mixed in a certain proportion to create other flavors. DigiScents developed several thousands of smells which could be transmitted through e-mail or posted on the web page.

Application of odorants in the medical industry

3. Aroma marketing

Nowadays, the author of sensory marketing, using all the senses (vision, smell, touch, hearing) to shape the image of the seller and the promotion of his product, is Martin Lindstrom. He developed a completely new set of marketing principles. "My idea," wrote Lindstrom, "is to use not only the visual perception of the brand, but also all other human senses and, above all, the sense of smell." Lindstrom was convinced that his concept was applicable in any country and in any area of commerce. Research into the American neuropathologist Alan Hirsch also contributed to the active

use of odors in business. He proved that sales in aromatized rooms increased markedly, as buyers are in a good mood and more positively evaluate the product. A pleasant smell increases the willingness to purchase goods by 40%, increases the number of impulsive purchases by 6%, prolongs the buyer's stay on the trading floor by 16%.

Aroma marketing today - selective air scenting to increase sales and positive impact on the customer. It can be successfully applied in a pharmacy. It is important not only to choose suitable odor for the trading floor (aroma design), but also to neutralize the existing negative odors (aroma blending). It is necessary for smells to cause in the pharmacy visitors associations with health, sun, nature, etc. When choosing the smell takes into account the target audience, time of day and season. In summer, the smell of grass is pleasant. In winter, "warm" smells (e.g., vanilla) are preferred, in the spring - floral. In the fall, woody aromas are appropriate. There are five main lines of aromas: 1) fruit, 2) woody 3) floral, 4) thematic (coffee, leather, vanilla) and 5) creative (library or Christmas).

Aroma marketing in network pharmacies is most effective - the "brand" smell improves their positioning. In pharmacies with a significant amount of parapharmaceuticals, odors help to successfully sell cosmetics. Pleasant smells create psychological comfort, reducing conflict in a pharmacy. For example, some nutmeg compounds help relieve stress.

However, it is necessary to take into account the fact that only in the USA about 20 million people suffer from intolerance to synthetic fragrances. An allergic reaction to odors can manifest as inflammation of the mucous membranes, nausea, difficulty breathing or dizziness. Based on this experience, not all fragrances are used for flavoring rooms. In aroma marketing, hypoallergenic synthetic aromatic substances, identical to natural ones, are mainly used. Common household aerosols, which are often allergenic, are not used. So that the compositions do not cause allergies, they must be environmentally safe and comply with all hygienic requirements.

Under the conditions of intense competition, aroma marketing is becoming more and more popular. Domestic pharmaceutical companies are only taking the first steps in this area, but soon marketing will become familiar, as it is one of the most effective and recognized tools to increase sales.

4. The use of odors in medical products

Aromas, as additives, have a wide application in medicine. The use of drugs due to the target audience. So, medicines for children often come with a variety of fragrances, but for adults, the smell of medicine plays a

secondary role. For children in the assortment of Belarusian pharmacies there are a variety of flavors that facilitate patient acceptance of medicines. Various sweet aromas of toffee, caramel or honey.

There is also a division of odors for the purpose of use of the drug. If we consider the line of drugs with smells, then the following means are distinguished: ointments, nasal solutions and medicines for the treatment of the throat. In pharmacies, you can find a variety of fragrances. As a rule, it is a relaxing and cooling menthol or eucalyptus, for nasal solutions these are “sea waves” aromas, and for the throat it is the smell of sweet honey, sage. Currently popular medicines for bad breath. They are made with parsley flavors. When it comes to smoking, lemon smells are often used. For stress reduction, hawthorn, sage and valerian are used commonly.

Conclusion: Aromatology is a very important component of our life, the study of which opens up new opportunities for increasing the sales of products, improving the quality of human life and finding non-standard solutions to problems. But at the same time, we must not forget that the number of allergy sufferers is constantly growing. According to the World Allergy Organization, allergies in some countries already make up 40%. And this sets a rigid framework for aromatology in all its manifestations. It is quite possible that when mankind has conquered allergy, the world will be filled with new fragrances that will help people.

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EL FENÓMENO DE LA LUMINISCENCIA

Objetivo del trabajo:

Familiarizarse con varios tipos de luminiscencia; ampliar y profundizar los conocimientos teóricos sobre este tema.

La luminiscencia, también conocida como “luz fría”, es un fenómeno que ha llamado la atención del hombre a lo largo de la historia sigue siendo igual de atractiva para los estudiantes de cualquier niveles educativos.

Un proceso luminiscente se produce cuando un átomo es excitado, los electrones pasan a niveles de energía superior, sin que sea por acción de la radiación térmica, y retornan posteriormente al nivel fundamental con emisión de luz.