



MEDICINAL PROPERTIES OF PROPOLIS AND ITS USE IN DENTAL DISEASES

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Propolis has been attracting human attention for a long time. The first description of it can be found in the writings of Abu Ali ibn Sino (Avicenna), who knew about the medicinal properties of the asil mummy product of the wild honey bee, widely used in folk medicine of antiquity. Professor of the Uzbek Central Institute of Traumatology and Orthopedics Shokirov O.S. in his book "Mumiy asil" characterized his role in the body. Application studies of the chemical composition of mumiye asil have shown that its basis is propolis balm [3, 6, 18].

Propolis is a sticky substance of dark green color and bitter taste, with a pleasant specific smell. The composition of propolis is a natural product of a complex chemical substance produced by bees. It consists of 85 minerals. The beneficial substances of propolis are preserved for a very long time, even after heat treatment. The composition of propolis includes: flavonoids – biologically active substances with wound healing and antimicrobial action; resins, essential oils, wax – also have antimicrobial and antiviral properties; organic acids (cinnamic, benzoic) – are able to reduce pain and kill bacteria; terpenes – carbohydrates, which are part of various essential oils, have pronounced antifungal properties; tannins or tannides – have astringent, anti-inflammatory effect, restore tissues; amino acids - the main element of the construction of animal, vegetable proteins, among them: leucine, tryptophan, cystine, methionine, arginine, histidine, tyrosine, lily sine, alanine; vitamins A, B, C, E, P – actively affect the metabolic processes in the body; minerals that make up human tissue cells: magnesium, cobalt, sodium, potassium, calcium, sulfur,

phosphorus, zinc, iron, manganese, silicon, selenium, copper, fluorine and others; essential oils [11, 20, 23].

Propolis has an incredibly wide range of therapeutic and beneficial properties. The main ones are bacteriostatic and bactericidal. It suppresses activity, and also kills a rather large range of various microorganisms, including viruses, tuberculosis bacillus, trichomonas, candidiasis, fungi, hepatitis viruses, influenza [1, 14, 32]. It is worth noting that the intestinal microflora does not suffer, and you should not be afraid of dysbiosis. Both an alcohol solution and an aqueous propolis have this property. In the 19th century, scientists revealed that almost complete sterility reigns in a healthy bee hive, which is facilitated by propolis. It inhibits the growth of viruses and prevents the re-development of viral infection [13, 26, 31]. Simultaneous administration of propolis with antibiotics enhances their effect. But there is no such effect in combination with levomycetin and penicillins. Propolis affects not only harmful microorganisms, but also phagocytosis, enhancing it. Phagocytosis is the process of removing foreign material from the body with the help of phagocytes - special cells. This contributes to less poisoning, toxification. Even the same dysbiosis can be equated with poisoning, and propolis in this case performs a wide range of tasks. It also increases immunity, the level of gamma globulins [2, 9, 15, 28].

Propolis is considered an excellent analgesic, especially in an alcoholic solution. It is used in medicine as a good local anesthetic: for stomach injuries; for the treatment of diseases of the gums, oral cavity, teeth (rinsing, applying plates); for otitis media



(to instill an aqueous, alcoholic solution); for burns, eye injuries (to instill an exclusively aqueous solution); for the treatment of frostbite, burns, wounds (to apply applications made of whole propolis or moistened napkins) [5, 25].

Anesthesia begins 5-10 minutes immediately after the application of propolis. And it can last from 45 minutes to two hours. Propolis promotes the establishment of blood clotting processes. This is of particular importance during the prevention and treatment of complications, after heart attacks and strokes, in the complex treatment and prevention of varicose veins, since in such conditions blood clotting is very often increased, which threatens many complications. Clotting also increases with age, therefore, as a preventive measure, propolis after 50 years is useful to almost everyone [3, 4, 33].

Propolis strengthens the walls of capillaries with bleeding from the gums and nose, cuts, wounds, bruises, minor abrasions. It is also able to increase the natural permeability of the skin – to enhance the skin penetration of medicines. Therefore, propolis can be safely used to enhance the effect of other therapeutic drugs. It also cures suppuration, abscesses, promotes rapid resorption. Propolis helps to reduce itching in psoriasis, after bites, burns and fungal diseases, has a dermato-plastic effect, promotes the restoration of mucous membranes that cover many organs, prevents the development of scars. It is also known about the antitumor and antioxidant properties of propolis. It takes part in limiting the tumor process, normalizing respiration processes at the cellular level, cleansing cell membranes, stabilizing the reproduction of cells in our body [3, 7, 30]. Studies of the Perm Medical Academy have established that it is possible to use an aqueous solution of propolis without interruption for five years. Propolis is also used for colitis, chronic constipation, and large doses suppress the active activity of the intestine in cases of diarrhea [2, 10].

The use of propolis in dentistry began with scientific positions in medical practice in the 60s. In dentistry, propolis has found application for dental treatment. Bee glue exhibits bactericidal and antiseptic qualities, relieves inflammation, which makes the product indispensable for combating problems in the oral cavity. Ultrasound is usually used for gingivitis and other inflammatory reactions [3, 12, 16].

Typical indications for the use of propolis-based products:

1. inflammation of the mucous layer of the oral cavity (stomatitis) or gum tissue (periodontitis);
2. deep lesion of the tissue around the tooth (periodontal disease);
3. inflammatory reaction with the formation of purulent secretions affecting the periosteum, jaw bone (periostitis);
4. installation of prostheses;
5. healing of the hole after tooth extraction, burns, help after excision of the mucous membrane [5, 34].

Propolis also helps with toothache, bleeding gums, removes plaque and deposits. Also useful are medicines from the ultrasound for the treatment of sore throats, tonsillitis, pharyngitis or laryngitis. Bee glue is often prescribed for flux (gum abscesses) [6, 29].

How propolis affects teeth and enamel. The explanation lies in the component composition of the bond. Useful components are obtained from substances extracted from the buds of trees and enzymes that insects use to process the material. The third part of the bond is beeswax, half is resin. These components help in the formation of a protective film, disinfection.

Beneficial effect:

1. healing of wounds, damage to the mucous membrane;
2. bactericidal, destructive effect on *Candida* fungi;
3. anesthesia during regular procedures;
4. elimination of irritation, signs of inflammation;
5. saturation with useful substances;
6. formation of a protective layer over the gum tissue, tooth enamel;
7. activation of regeneration processes;
8. removal and prevention of deposits, plaque.

The combination of these healing properties in one product gives bee glue a therapeutic effect in the fight against dental problems. Among the useful qualities, they note a slight lightening of the surface of the teeth, the return of a smile, a healthy appearance [1, 16, 21].

Propolis is most often used for gingivitis and other inflammatory processes. Among the direct indications for the use of propolis-based products:



- inflammation of the mucous membrane of the oral cavity or periodontal;
- serious tissue damage near the tooth – periodontal disease;
- reaction in the form of purulent inflammation, passing to the periosteum, bone tissue;
- fixation of prostheses;
- restoration of tissue after removal of the element, burn, excision of the mucosa.

To get rid of tooth pain, propolis can be used in the following forms:

- attach a small piece of the product (about the size of a pea) to the diseased tooth and leave it for a short time. The remedy in solid form can also be chewed – the medicinal components of propolis will pass into saliva and demonstrate the expected effect;
- lower a small piece of cotton wool into an alcohol tincture of propolis and attach it to the unit;
- dissolve a few drops of tincture in 200 ml of warm water and rinse the mouth. If you add a few drops of mint and sage oils here, you can get rid of the unpleasant smell.

How propolis is used for gums. To eliminate unpleasant symptoms, propolis is used for gums in the form of an alcohol-based pharmacy infusion. However, the remedy is easily prepared at home (recipe). The best time for this is the autumn months, since beekeepers collect bee glue in the summer [17, 22, 27].

When using alcohol, there is a full-fledged transition of medicinal substances to liquid. The infusion is also prepared on a water basis, but some of the elements remain in propolis, since the resins interfere with dissolution.

Methods of application of bee glue:

- Chewing. Propolis is used in its pure form or with the addition of other ingredients. It is common to make sweets from cocoa powder, honey, and ouzo. In this form, propolis helps with toothache, also strengthens enamel, relieves inflammation, prevents the formation of caries [3, 24].
- Rinsing. A therapeutic procedure for the purpose of disinfection, anesthesia and improvement of the condition of the oral mucosa. A rinse aid is used in the form of a pure tincture or with the addition of a herbal decoction of mint, sage, chamomile [18].
- Baths. The procedure is applied by mixing propolis infusion (2 teaspoons) with a glass of warm

water, keep the liquid in your mouth for 2-3 minutes. Benefits: anesthesia, cleansing of interdental spaces and pockets with gums, giving freshness to breathing [5, 19].

- Lotions. A common option is when the gum tissue is damaged or the hole is bleeding after tooth extraction. Benefits: protection from suppuration, inflammation, healing, reduction of burning, pain. It is required to wet a cotton pad with alcohol infusion, attach it to the lesion.

These methods help to deal with most dental problems. Additional application options: cauterization of ulcers on the mucous membrane with a cotton swab dipped in an infusion, and the addition of propolis solution to toothpaste to strengthen the enamel [3, 6, 25].

Propolis in combination with other components is able to whiten tooth enamel. One of the recipes includes: soda, hydrogen peroxide, lemon juice. The second remedy consists of soda, salt, diluted propolis infusion and toothpaste. All components are taken in the dose required for single use [9, 30]. At the time of therapy, you will have to give up coffee, tea, smoking. To notice the obvious effect, the procedure should be carried out daily (2-3 weeks). The bleaching compound should be used twice a day after brushing your teeth.

How to rinse with propolis tincture at home. Propolis tincture for rinsing teeth, gums is bought at a pharmacy or prepared independently. The home procedure will require compliance with the rules to obtain a healing effect and safe use [3, 7].

Instructions for rinsing: dilute 1 small spoonful of propolis tincture on alcohol in a glass of warm water (or 30 drops per 200 ml). Put the liquid in your mouth, rinse for 30-40 seconds. Spit, repeat the procedure with a new portion of the medicine. Perform rinsing for 2-4 minutes.

The number of repetitions to achieve a therapeutic effect is 3-5 times a day. It is better to perform the procedure after eating, before going to bed. This will help to remove food residues, disinfect the surfaces of the gum tissue, teeth and mucous membrane.

Water-based tinctures are used more often due to the absence of side effects. The only contraindication is an allergic reaction to ultrasound. For children and



pregnant women, only an aqueous solution is recommended. Strengthening of the therapeutic effect is obtained by diluting the remedy in a decoction of oak bark, calendula, chamomile.

Sometimes an unpleasant, putrid smell comes from the mouth, for example, with periodontal disease. Rinsing with an infusion of bee glue will help to cope with this problem. For the procedure, you will need to dilute a healing solution (a few drops) with 200 ml of mint broth. It is better to rinse in the morning and before going to bed.

Tincture of calamus and propolis helps with toothache, relieves inflammation. The root of the plant is used for treatment, since this part is saturated with fatty acids, vitamins, minerals, and other elements. Useful properties of the medicinal solution:

1. disinfection, astringent, anti-inflammatory effect;
2. healing of ulcers, wounds, mucosal damage;
3. elimination of stale breath, strengthening of tooth enamel;
4. fight against bleeding gums;
5. anesthesia, reduction of tooth sensitivity;
6. elimination of suppuration.

Indications for use of calamus products with narrow: gingivitis, periodontitis, treatment of caries, pulpitis, oral infections. Additional benefits: lightening of enamel, elimination of painful sensations, strengthening of dentin.

Preparation of tincture:

- To make a remedy from bee glue – mix 15 g of crushed ouzo with 500 ml of vodka.
- Prepare an extract from calamus – combine 100 g of crushed rhizome and half a liter of vodka.
- Place the infusion in dark bottles, put in a shaded place for 10-14 days, stirring occasionally.
- Skip through the filter.
- Before use, mix 1 teaspoon of propolis tincture and 1 tablespoon of calamus root extract.

To perform the procedure, take 2 large spoons of healing liquid and rinse for 2-3 minutes. The pain goes away after 5 days with regular use. To eliminate bitterness, it is allowed to dilute the solution with 1 tablespoon of water.

An important rule is that after rinsing, the drug must be spat out, not swallowed, due to the accumulation of pathogenic bacteria in the liquid.

Propolis tincture for the treatment of tooth cysts. A cyst usually appears between the jawbone and the root of the tooth due to infection. There is pus or cystic fluid inside the formation [3, 6, 18].

An infusion made from bee glue with alcohol is used as an adjunct to therapy because of its ability to eliminate inflammation and antibacterial action. However, natural medicine helps only in the early stages of cyst development with mandatory dental supervision.

Bee glue-based products are unable to kill the nerve. The only benefit from the use of propolis drugs is mild anesthesia. However, the tincture often has the opposite effect. When liquid gets into the dental passage, the pain only worsens. The best solution is to consult a dentist.

Contraindications and possible harm. The healthfulness of bee glue does not eliminate the presence of contraindications. The restrictions include:

1. allergic reaction;
2. diseases of the liver, gallbladder, kidneys, pancreas;
3. bronchial asthma, diathesis.

Propolis does not show harm specifically to the teeth. Possible side effects are observed with an allergic reaction (itching, redness, burning and fever). If the concentration of the tincture is exceeded, a burn of the gum or mucous membrane is likely [7, 14, 35].

Bee glue is a common remedy to combat problems in the oral cavity. Main Properties: bactericidal activity, removal of inflammation and pain. Saturation with a large amount of useful substances helps to strengthen, slightly lighten the tooth enamel, eliminate bleeding gums.

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