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## GENERAL CHARACTERISTICS OF MEDICAL PROPERTIES OF THE MATERIAL OF COLETEX-ADL



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### Annotation

Bandages are also an important part of the treatment process. Recently, chemical textile workers, together with biologists and physicians, have attached particular importance to giving dressing materials an additional medical effect with the addition of drugs to them.

### Аннотация

Перевязочные материалы являются важной частью процесса лечения. В последнее время химические текстильщики вместе с биологами и врачами придают особое значение приданию туалетным материалам дополнительного медицинского эффекта с добавлением к ним лекарств.

**Ключевые слова:** воспалительные заболевания и травмы челюстно-лицевой области, перевязочные материалы, инновационные технологии.

As we know, textiles in medicine are traditionally used for the manufacture of dressings. Napkins, bandages and other various materials have always been and remain to be used, since already without them no operation can be performed. Their effectiveness lies in such qualities as: high sorbed ability, breathability, elasticity, ease of use, and others.

Dressings are also an important part of the treatment process. They serve to drain wound surfaces and protect them from secondary infection. Varieties of dressing facilities are currently quite wide, which meet modern methods of treatment of wounds. The creation of these tools is the result of the constant search for new dressing tools that contribute to the rapid healing of wound surfaces.

Recently, chemical textile workers, together with biologists and physicians, have attached particular importance to giving dressing materials an additional

medical effect with the addition of drugs to them. By studying such a problem, the materials will not only close the wound from infection and absorb blood, but will also have a healing effect due to the injected drug. In this case, the drug added to the material should have a prolonged-action effect. At the same time, the dose and effect of the drug must comply with medical standards. In the event that if the dressing with the added drug has a prolonged effect, then there will be no need for frequent dressings, and the wound healing process will not be disturbed. There are very different ways of introducing drugs and biologically active substances into the textile material, and it also has its own, special requirements for all drugs in terms of suitability and on the side of their acceptability in practice. First, the textile material must be non-toxic, atraumatic, secondly, it should not crumble into the wound and not stick to the wound, injuring the damaged surface, and also it must have a certain viscosity and have an additional therapeutic effect depending on the added drug. Taking into account the above requirements, sodium and calcium alginate and the sodium salt were chosen as the polymer base. The preference of alginates is due to the fact that they have a pronounced hemostatic effect, anti-inflammatory and reparative properties. Sodium salt of alginic acid is used in connection with the ability to excrete heavy metals (mercury, lead) and radionuclides from the body. Alginates are important for medical practice, because they have the ability to prevent the development of many diseases – cancer, cardiovascular, renal, gastrointestinal, and can strengthen the immune system.

The immunostimulating effect of alginates is associated with the activation of phagocytosis (which increases antiviral and antimicrobial reactions), with the adsorption of an excess of immune complexes in the blood (thereby preventing the development of inflammatory and allergic reactions). Alginates increase the barrier function of the skin and mucous membranes of the respiratory tract and gastrointestinal tract in relation to the pathogenic action of microorganisms by stimulating the synthesis of antibodies (immunoglobulins A) of local specific protection. Stimulating phagocytosis, they have an antitumor effect. Alginic acid salts are cholesterol and fatty acid sorbents, thereby eliminating the main possible causes of atherosclerosis. For the treatment of wounds of various origins, burns, trophic ulcers, alginate-coated dressings are produced. Such dressings have drainage properties, accelerate wound cleansing, protect the wound from infection and injury, and promote a favorable course of the wound process and healing. With such above effects, modern medical textile material Coletex-ADL has the most effective effect and performs the mechanical function of the postoperative wound drainage today.

It is known that Coletex-ADL contains active ingredients like: sodium alginate, dioxidine and lidocaine. Sodium alginate was chosen as a biopolymer for polyfunctional PS Coletex-ADL. According to the results of research by many authors, sodium alginate, which contains a large number of trace elements, is a prodrug. Necrosis of tissues does not occur under the alginic layer, and under alginate dressings, the period of necrosis of non-viable tissues is shortened, which favorably affects the course of the wound process.

Alginates, as mentioned above, stimulate phagocytosis, where phagocytes are the main “orderlies” in the body. Alginates attract to themselves (sorb) and thus make inactive circulating immune complexes in the blood. The immune complex is a conglomerate consisting of an antigen (the protein portion of the microbial wall, a foreign substance) and a specific protein produced by the immune system – the immunoglobulin (also called an antibody). If there are an excessive amount of such immune complexes in the blood, the body does not have time to clear them. Excessive amounts of circulating immune complexes damage the vascular wall of the smallest blood vessels in almost all organs and cause an inflammatory reaction. The damaging role of excess circulating immune complexes has been proven in many diseases (bronchial asthma, rheumatism, rheumatoid arthritis, glomerulonephritis, chronic hepatitis, myasthenia, autoimmune anemia, thrombocytopenia). They are able to sorb (bind) and an excessive amount of a special class of immunoglobulins (E), guilty of the development of acute allergic reactions and diseases. Sodium alginates stimulate the synthesis of antibodies of local specific protection (class A immunoglobulins).

Dioxidine in the napkin has an antiseptic effect. It is effective in infections caused by the *Pseudomonas* sputum, vulgar *Proteus*, *Klebsiella*, *Staphylococcus*, *Streptococcus*, pathogenic anaerobes. Dioxidine acts on bacterial strains resistant to other chemotherapeutic agents, including antibiotics. Lidocaine is a local anesthetic that blocks the transmission of pain impulse for 60-90 minutes, since the drug is subsequently hydrolyzed in a weakly alkaline medium.

The peculiarity of Coletex-ADL napkins as a local anesthetic is that with a sufficiently low concentration of lidocaine in them (2% of the masses) compared with other dosage forms, for example, sprays, ointments, etc., the analgesic effect is more effective and long. For example, in a comparative study of the therapeutic properties of Coleteks-ADL wipes and a 10% spray, the advantage of wipes was proven. When applying Coletex-ADL wipes on the wound area after receiving injuries or operations, the patients noted an anesthetic effect for 60-90 minutes, which are usually characterized by the most pronounced pain impulses from the affected area (damage).

According to clinical trials with the use of Coleteks-ADL wipes, the infected wound surface was sanitized in 5-9 days, which is 3-7 days earlier than in the comparison groups (Oltarzhevskaya N.D., Moiseva A.A., Egorova E.A., 2004).

The introduction of dioxidine antiseptic into the composition reduces the risk of secondary infection of the wound surfaces (in everyday life, in the process of dressings, surgical treatments, etc.), abandon the systemic use of antibiotics from a prophylactic point of view and reduce the course of preventive therapy.

Thus, Coletex-ADL in modern medicine has taken a special place with satisfactory indicators in the textile dressing. Given the above composition and properties of the drug, it will be appropriate to use for suppressed inflammations of the maxillofacial region.

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## ПРАКТИЧЕСКОЕ ОБОСНОВАНИЕ ПРИМЕНЕНИЯ МЕТОДИК WAX-UP И МОК-UP ПРИ ОРТОПЕДИЧЕСКОМ ВОССТАНОВЛЕНИИ ФРОНТАЛЬНЫХ ЗУБОВ ВИНИРАМИ



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### Аннотация

В данной статье практически обосновывается рекомендация по применению Wax-Up и Moc-Up при протезировании винирами. Восковое моделирование будущей конструкции протеза является актуальным в эстетической стоматологии, так как дает возможность пациенту оценить эстетику последующего ортопедического лечения. И тем самым, облегчает работу зубного техника и врача, застраховывая их от переделывания работы.

### Annotation

In this article, the recommendation for the use of Wax-Up and Moc-Up with veneers is practically justified. Wax modeling of the future design of the prosthesis is relevant in aesthetic dentistry, as it allows the patient to assess the aesthetics of subsequent orthopedic treatment. And thus, facilitates the work of the dental technician and the doctor, insuring them from the alteration of the work.

**Цель:** обоснование необходимости применения методик Wax-up и Moc-Up при ортопедическом восстановлении фронтальных зубов винирами. **Материал и методы:** протезирование винирами было проведено 9 пациенткам женского пола (средний возраст 27 лет). У 3 из них использовался традиционный протокол ортопедического лечения винирами, у 6 протезирование винирами служило этапом предварительной подготовки с помощью методик Wax-up и Moc-Up. Оценку использованных методик проводили с помощью опроса пациенток и фотопротокола. **Результаты:** все три па-