REVIEW OF ABRASIVES FOR THE DEVELOPMENT OF THERAPEUTIC AND PREVENTIVE TOOTHPASTES

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Introduction. Currently, the most common oral hygiene product is toothpaste. The share of dental and oral care products accounts approximately 20 % of the total volume of manufactured cosmetic products. In addition to hygienic purposes, toothpastes are effective and economical means of preventing diseases of the teeth and oral cavity. The main ingredients of toothpaste are abrasive substances. Abrasives effectively fight tooth plaque and promote teeth whitening. The most important requirements for abrasives are chemical indifference, controlled abrasive ability in relation to tooth enamel, low adsorption capacity of the other components of toothpaste, good wettability, etc.

Aim. The assortment of abrasives in our time is very diverse, so the aim of the work was to analyze range of abrasives that are used in modern toothpastes.

Material and methods. There were used methods of systematic, structured, logical analysis, method of literature data summarizing.

Results and discussion. The most traditional abrasive is chalk, but currently, calcium carbonate is rarely used, as it has a high abrasion effect and cannot be combined with therapeutic additives. In our time, mono- and dihydrate of dicalcium phosphate, anhydrous dicalcium phosphate, tricalcium phosphate, sodium metaphosphate, aluminum hydroxide, silicon dioxide, zirconium silicate, aluminum silicate, polymeric compounds of methyl methacrylate are used. Many of them are not only abrasives, but also have additional properties, for example, contribute to the remineralization of enamel. Silicon dioxide is safe, well compatible with all components of toothpastes, does not reduce the activity of fluorine-containing components and surfactants, antibacterial additives, vitamins, has controlled abrasiveness, which allows creating pastes with a wide range of specified properties. It provides the optimal pH – 7. In addition, silicon dioxide synthesis provides a substance with the required degree of dispersion, taking into account the index of abrasion. So, the optimal abrasion of toothpastes is: pastes for children – 20-30, pastes for adults – 80-100, pastes for smokers – 120-150.

Conclusions. Thus, when choosing an abrasive, it is necessary to take into account its indifference to the other components of the paste, the ability to react with the hard tooth tissues, adsorb the components of the caste, to be wetted with the water-glycerol solution of the gelling agent and economic accessibility.