AMERICAN ACADEMIC PUBLISHER

INTERNATIONAL JOURNAL OF MEDICAL SCIENCES

ISSN NUMBER: 2692 - 5206 Volume 5. No 12. December ,2025

"INVENTION OF A NEW MEANS" AERODENT "FOR THE PRIMARY PREVENTION OF DENTAL CARIES IN CHILDREN."

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Abstract. Dental caries is a common disease among the population of different geographical zones and countries of the world. Explains the complexity of the pathological condition. One of the urgent tasks now is to introduce new methods of preventing this caries and to improve the existing methods to identify promising ways to reduce this disease.
Keywords. Dental caries, oral hygiene, prevention.

Relevance: Oral hygiene is an important factor in the development of caries. Thorough and regular brushing of the teeth can partially compensate for the effects of other factors (early infection with Str. mutans and excessive consumption of easily fermentable carbohydrates) [2].
However, many parents believe that there is no connection between the health of temporary and permanent teeth, and therefore do not pay enough attention to oral hygiene [15]. It should be noted that young children do not need to take care of their teeth; this should be done by adults [2].
It is important for parents to start brushing their children's teeth at an early age. Even before the first teeth appear, it is necessary for parents to clean their child's mouth using a cloth soaked in boiled water or a rubber finger protector. When the first teeth appear, about six months after birth, it is necessary to start using a soft baby brush, which should be changed every 3 months, and a calcium-containing toothpaste. It is necessary to brush the teeth in the morning before breakfast and in the evening after the last meal [9].
For regions that are endemic for fluoride content in water, fluoride-containing toothpastes can be used. However, the recommendations for the age at which these products can be used and the dosages vary between countries and organizations (this topic is discussed in more detail in the subsection on the role of fluoride compounds). It is important for parents to provide gradual knowledge and establish the foundations of hygiene education according to the child's age to develop a habit and eventually a strong skill of brushing teeth [10]. Starting from the age of 2.5-3 years, many children begin to brush their teeth on their own, but due to the immaturity of their motor skills and lack of consistent practice, they may not be able to perform proper oral hygiene on their own. Therefore, it is important for parents to provide guidance and assistance in brushing their children's teeth [3].
It should be noted that the family's lifestyle, hygiene habits, and parents' knowledge of dental health are directly related to the risk of tooth decay in their children [12]. Recently, probiotics have been introduced to prevent tooth decay in children. One of their positive effects is their ability to normalize the microbial landscape by producing bacteriocin and adhesion inhibitors [5]. According to Sookhee S. [4], probiotics can also inhibit the growth of caries-causing bacteria.
At this time, the use of fluoride-containing toothpastes in children is regulated by professional communities in different ways. There is no approved basis for dosing, volume, or age restrictions, which could provide a predictable effect from using toothpastes with micro-doses of fluoride [9]. The Center for Disease Control and Prevention (CDCP) in the United States allows the use of

AMERICAN ACADEMIC PUBLISHER
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ISSN NUMBER: 2692 - 5206 Volume 5. No 12. December ,2025

fluoride-containing toothpaste in children starting at the age of two. The Australian Scientific Centre for Oral Health allows the use of fluoride-containing toothpaste starting at the age of one and a half [9]. The European Academy of Pediatric Dentistry [10], the Scottish Intercollegiate Guidelines Network (SIGN), the German Dental Association (DGK), and the American Academy of Pediatric Dentistry [1] recommend the use of fluoride toothpaste when children's first tooth erupts. The British Pediatric Dentistry Community and the World Health Organization consider the use of fluoride toothpaste to be a practical application. In areas with insufficient fluoride levels in drinking water (less than 0.3 mg/L) [5], according to the requirements of professional dental associations and European and American unions [6], a combination of systemic and topical fluoride treatments has been approved for the prevention of dental caries in children. However, the use of restorative therapy for early childhood caries is not well-established. Given the specific features of the initiation, development, and course of caries in young children, it is relevant to develop and implement a method based on reducing the formation of dental plaque and inactivating pathogenic microbial communities in the prevention and treatment of dental caries in the most vulnerable population [2]. In New Zealand, the development of the Caries Prevention Programme is based on the study of women's hygienic knowledge and their training in individual oral hygiene [3]. A review of numerous foreign sources has shown that pediatricians must be trained in the basic principles of dental disease prevention [6].

Thus, the analysis of literature data has shown that dental caries in children is a multifactorial, economically and socially significant health problem that requires a systematic and thorough approach to its solution. The assessment of the strength and degree of influence of the risk factors of this disease should be carried out in the context of a specific patient, taking into account the stage of development and age-related characteristics of the structure of deciduous teeth, as well as exogenous and endogenous circumstances. Some of the risk factors for developing caries in baby teeth are related to more or less objective circumstances (environmental conditions, the mother's overall health, and the course of pregnancy and childbirth), so "attempts to influence them through patient and dentist efforts" are limited, and only some of them can be corrected. However, there is a large group of risk factors that are entirely dependent on the child's and their parents' behavior (diet, oral hygiene, motivation to maintain good dental health, etc.) and can be minimized by both the dentist and self-help measures [7, 2]. The well-known disparate and antagonistic studies on the timing of tooth eruption, as well as the polyetiological nature of the impact on the development of aggressive dental diseases, dictate the need to consider the regional and ethnic characteristics of the course of caries in young children, taking into account a differentiated approach, in order to develop and implement a prevention program. In this case, these factors will be the main objects that determine the scope and direction of medical and preventive measures. Thus, the search for new effective therapeutic and preventive measures that increase enamel resistance to acid attack in caries, enhance overall body immunity, and reduce the risk of periodontal inflammatory diseases is currently ongoing [2, 10]. A large number of calcium-containing drugs have been proposed for the treatment and prevention of dental caries. In our country, a 10% solution of calcium gluconate is widely used for application and electrophoresis, and caries incidence is reduced by 19.6-39.4% [8, 6]. Fluoride preparations in various forms and modifications are also used for the treatment and prevention of caries, ranging from centralized fluoridation of drinking water, salt, and milk to their use in various hygienic products (toothpastes, gels, elixirs, etc.) [4]. Currently, there are only a few reports on alternative effective methods of caries prevention [1]. An

AMERICAN ACADEMIC PUBLISHER
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ISSN NUMBER: 2692 - 5206 Volume 5. No 12. December ,2025

important component of the treatment of initial caries is strict adherence to oral care guidelines, which aim to prevent the formation and long-term presence of dental plaque in the area of demineralization. Additionally, it is crucial to encourage patients to monitor their dietary habits, reducing the consumption of carbohydrates and avoiding them between meals [2,1].

Currently, dentistry uses complexes of medicinal plants with various pharmacological effects, such as antimicrobial and anti-inflammatory (Sanguiritrin, Sanguicol, Gingitek, Rotokan, Elekasol, Stomatofit), wound-healing (Hyposol, Vitaon), antiviral (Chelepin, Shizarin), and immunomodulatory (Fitomix-40) [3].

The pathogenic factors that can be affected by phytopreparations in the treatment of dental caries and periodontal diseases include dental plaque; the composition and properties of saliva; and certain diseases and conditions of the body [21]. The medicinal properties of phytopreparations are determined by the content of so-called active (biologically active) substances, which are chemical compounds that can have a physiological effect on the living organism [5]. From our point of view, medical oil obtained from the rhizomes and roots of Sanguisorba officinalis, the flowers of Calendula officinalis, and the buds of Carnation with the addition of Ecdysterone has good regenerative, antiseptic, analgesic, wound-healing, and bactericidal properties [1]. A comparative evaluation of medicinal calendula preparations and other antiseptic and anti-inflammatory agents revealed their advantages over synthetic analogues [9]. The wide range of pharmacological activity is due to the rich content of carotenoids, flavonoids, vitamins, calcium, potassium, magnesium, sodium, phosphorus, and a number of other macro- and microelements in the plant's flowers. In addition, calendula medicinalis phytopreparations exhibit anti-inflammatory, wound-healing, and bactericidal properties (sensitive to coccal microflora and fungi) [5]. Currently, preparations of Eupatorium officinale are widely used, which have antimicrobial, analgesic, hemostatic, and astringent effects [1,4]. The active substances of Eupatorium officinale are considered to be polyphenolic compounds, in particular tannins, among which hydrolyzable tannins predominate [2]. Tannin-containing substances are used in medicine, mainly for skin lubrication in case of burns, cracks, and ulcers. However, almost nothing is known about the inhibitory effect of tannin-containing plant preparations on microorganisms in dental plaque [6]. Tannins reduce the viability of pathogenic bacteria. Under their action, numerous bacterial flagella shorten and lose their mobility, which significantly complicates the process of bacterial attachment to epithelial cells [5]. It has a therapeutic, wound-healing, analgesic, cauterizing effect [4]. In recent years, phytoecdysteroids, which are widely distributed in the plant world, have attracted significant attention in the field of medicine. Phytoecdysteroids are a large class of polyhydroxylated steroid compounds found in higher plants. These compounds have unique properties, including anabolic, vasoprotective, immunostimulating, adaptogenic, and tonic effects.

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