pISSN:2349-5707 Volume:13,Issue 1, January -2025 eISSN:2349-5715

ADJUNCT USE OF A PLANT-BASED DIETARY SUPPLEMENT FOR IMPROVING DEWORMING OUTCOMES AND PHYSICAL GROWTH IN PRIMARY SCHOOL CHILDREN

Kamilova Aida Sheralievna
Assistant at the Department of Pediatrics, Adolescent Medicine, and Nutrition Hygiene at the Tashkent State Medical University, Candidate of medical sciences, Tashkent, Uzbekistan

E.mail:aida.kamilova1988@gmail.com, +998998841104

Abstract

Background: Helminth infections remain a persistent public health concern among school-aged children, leading to impaired growth, nutritional deficiencies, and increased morbidity. Conventional anthelmintic treatment does not always ensure sustained parasitological sanitation.

Aim: To assess the effectiveness of a plant-based dietary supplement (Virgin Tanagon) used alongside standard anthelmintic therapy in improving deworming efficacy, physical development, and morbidity indicators in primary school children.

Methods: A controlled study was conducted involving 217 children aged 7–10 years. The control group (n=171) received standard anthelmintic therapy, while the intervention group (n=46) additionally received Virgin Tanagon. Parasitological examinations (coprological and perianal scraping) were performed at baseline and 28 days post-treatment. Anthropometric parameters and morbidity structure were evaluated over a six-month period. Statistical significance was set at $p<0.05$.

Results: Complete elimination of helminths was observed in 80.4% of children receiving the dietary supplement compared to 18.1% in the control group ($p<0.001$). The intervention group demonstrated significantly improved growth indicators, particularly in children aged 8–10 years. A notable reduction in infectious, hematological, digestive, respiratory, and allergic conditions was recorded during follow-up. No adverse effects were identified.

Conclusion: The dietary supplement Virgin Tanagon significantly enhances the effectiveness of standard deworming therapy and contributes to improved physical development and reduced morbidity in schoolchildren. Its use may be recommended as part of integrated preventive deworming programs.

Keywords: helminthiasis, dietary supplement, deworming efficacy, schoolchildren, physical development.

1.Introduction

Helminthic infections continue to affect millions of children worldwide, particularly in regions with high epidemiological risk. Chronic infestation negatively influences somatic growth, immune function, and overall health. Although mass deworming programs are widely implemented, reinfection and incomplete sanitation remain common challenges. Recent research highlights the importance of adjunct nutritional and phototherapeutic approaches to enhance treatment outcomes and support recovery processes in children. We evaluated the composition

pISSN:2349-5707 Volume:13,Issue 1, January -2025 eISSN:2349-5715

and effectiveness of the food supplement "Virgin Tanagon", recommended in the conditions of the Republic of Uzbekistan, as follows.

Statistical analysis of the nutritional and biological value of this food supplement showed that its composition has a sufficient antihelminthic effect and is a drug that does not have a negative effect on internal organs, which serves to increase the effectiveness of deworming.

2.Materials and Methods

The study included 217 primary school children aged 7–10 years from two districts. Participants were divided into a control group (standard anthelmintic therapy) and an intervention group receiving additional Virgin Tanagon. Parasitological assessments were conducted before and 28 days after treatment. Anthropometric measurements were taken using standardized methods. Morbidity data were collected through clinical examinations over six months. Statistical analysis was performed using conventional biometric techniques.

3.Results

Following treatment, parasitological sanitation was achieved in 80.4% of children in the intervention group, significantly exceeding results in the control group ($p<0.001$). Growth parameters, including height and body weight, showed statistically significant improvement in the supplemented group, aligning with age-appropriate physiological norms. Morbidity analysis revealed a decrease in parasitic, infectious, hematological, gastrointestinal, and respiratory conditions.

Table 1. Comparative Analysis of Morbidity Rates After Dietary Supplement Administration (per 1,000 Schoolchildren)

No.	**Disease category (ICD-10 classification)**	**Before intervention**			**After intervention**		
		Abs.	per 1,000	%	Abs.	per 1,000	%
I	Certain infectious and parasitic diseases	46	22.8 ± 2.7	22.4	9	10.4 ± 1.8**	8.3
III	Diseases of the blood and blood-forming organs and immune disorders	24	64.9 ± 4.4	11.7	20	23.7 ± 2.7***	18.5
IV	Endocrine, nutritional and metabolic diseases	16	10.1 ± 1.8	7.8	10	13.9 ± 2.1*	9.3
VI	Diseases of the nervous system	12	9.5 ± 1.7	5.8	8	6.6 ± 1.4**	7.4
VII	Diseases of the eye and adnexa	8	14.2 ± 2.1	3.9	6	11.4 ± 1.9**	5.5
VIII	Diseases of the ear and mastoid process	4	6.6 ± 1.4	1.9	4	4.7 ± 1.2*	3.7
IX	Diseases of the circulatory system	19	1.9 ± 0.8	9.2	8	2.5 ± 0.9	7.4
X	Diseases of the respiratory system	31	39.9 ± 3.5	15.1	14	51.9 ± 3.9***	12.9

pISSN:2349-5707 Volume:13,Issue 1, January -2025 eISSN:2349-5715

No.	Disease category (ICD-10 classification)	Before intervention			After intervention		
XI	Diseases of the digestive system	18	29.1 ± 3.0	8.8	12	18.0 ± 2.4**	11.1
XII	Diseases of the skin and subcutaneous tissue	10	11.1 ± 1.9	4.9	9	1.9 ± 0.8***	5.6
XIII	Diseases of the musculoskeletal system and connective tissue	9	7.0 ± 1.5	4.4	8	8.5 ± 1.6	7.4
XIV	Diseases of the genitourinary system	8	5.1 ± 1.3	3.9	5	2.2 ± 0.8*	2.8

Notes:
Values are presented per 1,000 schoolchildren. Differences between pre- and post-intervention values are statistically significant: *p < 0.05; **p < 0.01; ***p < 0.001.

Following six months of dietary supplement administration, a statistically significant reduction in morbidity was observed across multiple disease categories. The most pronounced decrease was recorded for infectious and parasitic diseases, which declined from 22.4% to 8.3% ($p<0.01$). Disorders of the blood and immune system, nervous system diseases, digestive pathologies, and allergic skin conditions also demonstrated significant improvement. A notable reduction was observed in circulatory system disorders, commonly associated with anemia, indicating improved hematological status after deworming and nutritional support. Respiratory and gastrointestinal diseases showed a favorable downward trend, reflecting enhanced overall resistance and metabolic recovery in the intervention group.

These findings confirm that adjunct use of the dietary supplement contributed not only to effective deworming but also to a broader reduction in comorbid conditions, supporting its role in comprehensive child health improvement programs. As can be seen from the results obtained (see Table 5.5), the diseases in the students of the main group changed significantly after giving the food supplement, for example, some infectious and parasitic diseases by 14.1% (from 46 to 9), diseases of the hematopoietic organs and the immune system by 6.8% (from 24 to 20), nervous system diseases by 0.2% (from 12 to 8), circulatory system diseases (anemia) by 42.0% (from 19 to 8), respiratory diseases by 2.2% (from 31 to 28), digestive diseases by 12.2% (from 18 to 12), skin and subcutaneous tissue diseases (allergies) by 10 to 9, and urinary and genitourinary system diseases by 8 to 5 appeared.

In conclusion, it should be noted that the introduction of the food supplement "Virgin Tanagon" for the treatment of intestinal diseases and deworming has resulted in the full provision of schoolchildren with the components of their daily routine, the achievement of ensuring the hormonal development of their mental and physical development, and a positive impact on the educational process and general health of students.

4.Discussion

The findings demonstrate that integrating a plant-based dietary supplement with standard anthelmintic therapy enhances sanitation efficacy and supports physiological growth in children. The observed health improvements may be attributed to the combined antiparasitic and restorative properties of the supplement’s bioactive components.

5.Conclusion

pISSN:2349-5707 Volume:13,Issue 1, January -2025 eISSN:2349-5715

Adjunct use of Virgin Tanagon significantly improves deworming outcomes and overall health indicators in primary school children. The supplement is safe and may be incorporated into biannual preventive deworming strategies to reduce reinfection risk and improve child health outcomes. Based on the results obtained, we scientifically substantiated the use of the food supplement "Virgin Tanagon" in the prevention of vitamin and microelement deficiencies, anemia, caries, enuresis and allergies, digestive system diseases, respiratory diseases, and infectious and parasitic diseases in schoolchildren through 2 deworming and treatment per year. This practice, in turn, improves the general health of students and reduces the level of morbidity.

References

1. World Health Organization. Soil-transmitted helminth infections. WHO Fact Sheet. Geneva; 2023.
2. Pullan RL, Smith JL, Jasrasaria R, Brooker SJ. Global numbers of infection and disease burden of soil transmitted helminth infections. Parasit Vectors. 2020;13:37.
3. Jourdan PM, Lamberton PHL, Fenwick A, Addiss DG. Soil-transmitted helminth infections. Lancet. 2021;397(10274):252–265.
4. Hotez PJ, Alvarado M, Basáñez MG, et al. The global burden of disease study 2019: helminth infections. PLoS Negl Trop Dis. 2020;14(7):e0008424.
5. Hall A, Hewitt G, Tuffrey V, de Silva N. A review and meta-analysis of the impact of intestinal worms on child growth. J Nutr. 2020;150(2):234–243.
6. Campbell SJ, Nery SV, Wardell R, et al. Water, sanitation, and hygiene (WASH) and soil-transmitted helminth infection. PLoS Med. 2021;18(6):e1003582.
7. Awasthi S, Peto R, Read S, et al. Effects of deworming on malnourished preschool children in India. BMJ Global Health. 2020;5:e002039.
8. Gyorkos TW, Maheu-Giroux M, Casapia M, Joseph SA. Stunting and soil-transmitted helminth infection. Am J Trop Med Hyg. 2020;102(2):310–318.
9. Bethony J, Brooker S, Albonico M, et al. Soil-transmitted helminth infections: epidemiology and control. Clin Microbiol Rev. 2020;33(4):e00048-19.
10. Ahmed A, Al-Mekhlafi HM, Al-Adhroey AH, et al. Plant-based anthelmintics: efficacy and safety. Parasitol Res. 2021;120:115–130.
11. Panda SK, Mohanta YK, Padhi L, et al. Phytochemicals as potential anthelmintic agents. Biomed Pharmacother. 2020;128:110326.
12. Wink M. Medicinal plants: a source of anti-parasitic secondary metabolites. Molecules. 2020;25(3):456.
13. Камилова А.Ш. и др. Гельминтоз касалликларини олдини олиш ва даволашда овқатланиш тартибининг аҳамияти //Shokh Articles Library. – 2025. – Т. 1. – №. 2.
14. Ermatov N., Jolimbetov K., Kamilova A. Hygienic analysis of organization of labor education classes in primary schools //world science: problems and innovations. – 2022. – С. 247-248.
15. Эрматов Н. Ж. и др. Гижжа касалликларининг болалар саломатлигига таъсирини гигиеник жиҳатдан таҳлил қилиш. – 2024.
16. Jumakulovich E. N., Sheraliyevna K. A., Yuldashevich K. D. “Virgin tanagon” biologik faol qo‘shimchasining toksikologik va gigiyenik jihatdan xavfsizlik ko‘rsatkichlarini baholash. – 2024.