**Description**

**A SOMATOTROPIC AND PRO-THYROGENIC COMPOSITION FORMED FOR TREATING GROWTH/DEVELOPMENT/DWARFISM SYNDROMES**

**Technical Field**

The invention relates to a somatotropic and pro-thyrogenic composition formed for treating growth/development/dwarfism syndromes.

**State of the Art**

Dwarfism is a condition of an individual who is smaller than the normal and who lacks the ability of normal development. Dwarfism occurs in the animals and also in the plants. It is not possible to make a certain classification as to what height would cause a human to be called a dwarf. The height that leads an adult human to be considered as a dwarf generally varies between one and one and a half meter. Normal persons may have dwarf children and the dwarf persons may have normal children. The causes of dwarfism in the human may be examined in two groups, namely the congenital dwarfism and the dwarfism that occurs later in life due to some diseases.

Dwarfism resulting from disease: The dwarfism may result from chronic kidney disease, cystic fibrosis and celiac disease where the nutrient absorption is impaired, the heart and lung diseases where there is low oxygen level in the blood, and the malnutrition during the early years of life. The treatment of these diseases generally provides a treatment for the dwarfism also.

The treatable type of dwarfism known as the pituitary dwarfism is the type in which the medicine has the biggest interest. This generally results from the inability of the pituitary gland to secrete sufficient growth hormone. Although there is usually no anatomic abnormality, the underlying cause is a disorder in the hypothalamus or the pituitary gland. African pygmies have a normal growth hormone level. However, the growth hormone disorder is present or the organ, especially the bone tissue, which is affected by the hormone, fails to respond to the hormone.

Pituitary dwarfism is generally noticed in the first year of life. While the child develops, his/her face remains undeveloped and babyish and his/her body remains pudgy. The bones are proportionally small, and the intelligence level may be normal or even above the average. Pituitary dwarfism is treated by administering to the patient the growth hormone obtained from a pituitary gland in the operation or autopsy. Today the growth hormone is synthesized and commercially available. When these drugs are used, the patients reach a growth rate that is 7,5 cm more per year as compared to the growth rate before the treatment. Other types of dwarfism do not respond to the hormone treatment.

Congenital dwarfism: The dwarfism is congenital in the mongolism, which is characterized by mental deficiency, abnormal facial appearance and some abnormalities in the hands and the feet. The dwarfism observed in the case of achondroplasia is characterized by short arms and legs, normal body and normal intelligence level. In the case of gargoylism, the dwarfism exists together with mental deficiency, profound deformities in the skeleton and the skull and the skin damage. Cretinism, which is the congenital deficiency in the function of the thyroid gland, involves mental deficiency along with dwarfism. Dwarfism is also present in Turner syndrome characterized by the missing or incomplete chromosome.

Currently, the growth hormone therapy, when applied alone, has failed to treat the dwarfism in 70% of the patients. The reason for this is that it is not possible to provide the effect of synthesis of a sufficient level of growth factor by the growth hormone when interacting with the liver.

As a result, the presence of the need for a composition for treating growth/development/dwarfism syndromes and the inadequacy of the existing solutions have made it necessary to perform an improvement in the relevant art.

**Object of the Invention**

In order to eliminate the disadvantages of the state of the art, an object of the invention is to trigger the production of the growth hormone.

Another object of the invention is to increase the expression of the growth factor-2 in a tissue selective manner and trigger the upright growth in the bones.

Another object of the invention is to elevate the levels of deiodinase D2 and D1.

Another object of the invention is to provide the fat burning by increasing the expression of malic enzyme.

Another object of the invention is to accelerate the conversion of T4 hormone to t3.

Another object of the invention is to provide an increase in the expression of igf-1 mRNA in the bone tissue.

Another object of the invention is to provide an increase in the expression of tgf-1 mRNA in the bone tissue.

Another object of the invention is to support the release of the growth hormone and the production of igf-1.

Another object of the invention is to support the release of the thyroid hormone.

Another object of the invention is to trigger the upright growth in the bones.

In order to achieve the aforesaid advantages, the invention is a composition for treating growth/development/dwarfism syndromes, said composition being obtained by the components selected from the group comprising dimethyldioscin, methyldioscin, 3,7-beta-diosgenin and 7-oxo-diosgenin that are used individually or in combinations.

The structural and characteristic features and all the advantages of the invention will become more clearly understood from the detailed description provided below and therefore, the evaluation must be made taking this detailed description into consideration.

**Detailed Description of the Invention**

The invention is a somatotropic and pro-thyrogenic composition formed for treating growth/development/dwarfism syndromes.

Dimethyldioscin triggers the production of the growth hormone. It achieves this by means of its GHRH agonistic effect. Dimethyldioscin increases the expression of fibroblast growth factor-2 in a tissue selective manner and triggers the upright growth in the bones. The growth hormone becomes able to trigger the synthesis of the growth factor at a sufficient rate in the liver when a sufficient level of t3 hormone is simultaneously present in the blood.

T3 hormone prolongs the expression durations of igf-1, tgf-1 and fgf-2 and increases mRNA expressions of the relevant growth factors especially in the bone tissues. This effect is the most important factor that enables the actions of the growth hormone to be actually realized. As a matter of fact, the growth disorders are observed in the children suffering from hypothyroidism.

3,7-beta-diosgenin, an ingredient of the composition according to the invention, with its structural similarity to 7-beta-dhea, elevates the levels of deiodinase D2 and D1, provides the fat burning by increasing the expression of malic enzyme and accelerates the conversion of T4 hormone to t3. These two components, owing to the simultaneous somatotropic and thyrogenic effects they provide, enable an increase in the expression of igf-1 mRNA in the bone tissue. They enable an increase in the expression of Tgf-1 mRNA in the bone tissue. They support the growth hormone release and the igf-1 production. They support the release of the thyroid hormone. They trigger the upright growth in the bones. They support the expression of fibroblast growth factor-2 in the bone tissue and preserve the receptor sensitivity.

The composition according to the invention contains dimethyldioscin, methyldioscin, 3,7-beta-diosgenin and 7-oxo-diosgenin. Said formulation is obtained by a mixture of the aforesaid components according to the following ratios by weight:

14-45% dimethyldioscin,

22-8% methyldioscin,

36-41% 3,7-beta-diosgenin,

28-6% 7-oxo-diosgenin.

The composition is obtained from the aforesaid components selected from the aforesaid group and used according to the mentioned weight ratio ranges individually or in combinations.

Said invention also encompasses the use of said composition for treating growth/development/dwarfism syndromes and the manufacture thereof for this purpose.

**CLAIMS**

1. A composition for treating growth/development/dwarfism syndromes, said composition being obtained by the components selected from the group comprising dimethyldioscin, methyldioscin, 3,7-beta-diosgenin and 7-oxo-diosgenin that are used individually or in combinations.
2. A composition according to Claim 1 characterized in that it comprises 14-45% by weight dimethyldioscin.
3. A composition according to Claim 1 characterized in that it comprises 22-8% by weight methyldioscin.
4. A composition according to Claim 1 characterized in that it comprises 36-41% by weight 3,7-beta-diosgenin.
5. A composition according to Claim 1 characterized in that it comprises 28-6% by weight 7-oxo-diosgenin.
6. A composition according to Claim 1 characterized in that it is formed with a somatotropic and pro-thyrogenic feature.
7. Use of the components according to Claims 1 to 6 obtained individually or in combinations from the group consisting of dimethyldioscin, methyldioscin, 3,7-beta-diosgenin and 7-oxo-diosgenin for the manufacture of a composition for treating growth/development/dwarfism syndromes.

**ABSTRACT**

**A SOMATOTROPIC AND PRO-THYROGENIC COMPOSITION FORMED FOR TREATING GROWTH/DEVELOPMENT/DWARFISM SYNDROMES**

The invention relates to a composition formed for treating growth/development/dwarfism syndromes.

No figure.