**Description**

**A COMPOSITION FOR THE TREATMENT OF MYASTHENIA**

**Technical Field**

The invention relates to a composition formed for the treatment of myasthenia.

**State of the Art**

Myasthenia, with full Latin name myasthenia gravis, emerges with such symptoms of quick fatigability and weakness upon movement in some muscles with voluntary movement, especially in the muscles moving the eyes, muscles enabling the chewing and swallowing and the face and tongue muscles, controlled by the cranial nerves. These symptoms, which are associated with continuous movement, disappear upon resting or upon the administration of anticholinesterases (the substances that inhibit the activity of the cholinesterase enzyme), e.g. neostigmine.

The anticholinesterase drugs employed in the state of the art for the treatment of myasthenia: Neostigmine and pyridostigmine employed for the purpose of eliminating the muscle fatigue associated with myasthenia have provided quite good results. The orally administered doses of neostigmine vary between 15 and 60 mg every 3-4 hours. The dose of pyridostigmine is twice that of neostigmine. Both drugs have slow-release forms. The treatment with neostigmine is continued by the administration of 150 mg daily. This treatment approach is the first and only method that should be selected for the slight cases and for the individuals with no thymus neoplasm. Administration of potassium or ephedrine in order to increase the anticholinesterase effect has not provided any additional benefit.

According to the state of the art, the invention no. EP1358159B1 with classification “C07D 213/73” entitled “3,4-diaminopyridine tartrate and phosphate, pharmaceutical compositions and uses thereof” relates to 3,4-diaminopyridine salts, pharmaceutical compositions containing at least one of said salts and uses thereof for the treatment of botulism, myasthenia, myasthenic syndromes or fatigue.

Further, the invention no. EP2011497B1 entitled “Phenotropil for the prophylaxis and treatment of hemorrhagic stroke and acute phase of ischemic stroke” relates to medicine, in particular to pharmacology and to medicinal agents exhibiting a neurotropic and cerebrovascular activity. The novelty of the invention consists in that an N-carbomoyl-methyl-4-phenyl-2-pyrrolidon agent injected into an organism displays an universal pronounced effect in the form of the one hundred percent survival of animals, eliminates the development of a neurological symptom complex of a cerebral stroke of different aetiologies, localizes a cerebral affection area and the destructive development thereof. It is proved, that the inventive agent exhibits universal neurotropic (neuromodulator) activity and produces a neuroprotective-cerebrovascular action.

As a result, the presence of the need for a composition for treating myasthenia 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 increase the igf-1 and igf-2 expression in the muscles.

Another object of the invention is to increase the androgen receptor density.

Another object of the invention is to support the satellite muscle cell expression.

Another object of the invention is to stimulate the protein synthesis.

Another object of the invention is to increase the CYP17A1 expression and support the natural adrenal androgen production.

Another object of the invention is to enable the functions of the adrenal androgens to exhibit rapid action by partial anti-glucocorticoid effect.

Another object of the invention is to suppress the pro-asthenic cytokines such as tnf-alpha and cox-2.

In order to achieve the aforesaid advantages, the invention is a composition for the treatment of myasthenia, said composition being obtained by the components selected from the group comprising 3,7-bis(3-trihydroxymethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one, 6-dihydroxyl hecogenin, 3,7-bis(2-hydroxyethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one, 6-oxo-difluoro-(16,20)-dioscin 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 composition for the treatment of myasthenia. Said composition increases the igf-1 and igf-2 expression in the muscles, increases the androgen receptor density, supports the satellite muscle cell expression and stimulates the protein synthesis, increases the CYP17A1 expression and supports the natural adrenal androgen production, enables the functions of the adrenal androgens to exhibit rapid action by partial anti-glucocorticoid effect, suppresses the pro-asthenic cytokines such as tnf-alpha and cox-2, increases the insulin sensitivity to establish an efficient sugar metabolism.

The composition according to the invention contains 3,7-bis(3-trihydroxymethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one,    6-dihydroxyl hecogenin,   3,7-bis(2-hydroxyethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one, 6-oxo-difluoro-(16,20)-dioscin.

Said composition is obtained by a mixture of the aforesaid components according to the following ratios by weight:

22-10% 3,7-bis(3-trihydroxymethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one,

38-26% 6-dihydroxyl hecogenin,

15-24% 3,7-bis(2-hydroxyethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one,

25-40% 6-oxo-difluoro-(16,20)-dioscin

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 myasthenia and the manufacture thereof for this purpose.

**CLAIMS**

1. A composition for the treatment of myasthenia, said composition being obtained by the components selected from the group comprising 3,7-bis(3-trihydroxymethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one, 6-dihydroxyl hecogenin, 3,7-bis(2-hydroxyethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one, 6-oxo-difluoro-(16,20)-dioscin that are used individually or in combinations.
2. A composition according to Claim 1 characterized in that it comprises 22-10% by weight 3,7-bis(3-trihydroxymethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one.
3. A composition according to Claim 1 characterized in that it comprises 38-26% by weight 6-dihydroxyl hecogenin.
4. A composition according to Claim 1 characterized in that it comprises 15-24% by weight 3,7-bis(2-hydroxyethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one.
5. A composition according to Claim 1 characterized in that it comprises 25-40% by weight 6-oxo-difluoro-(16,20)-dioscin.
6. Use of the components according to Claims 1 to 5 obtained individually or in combinations from the group consisting of 3,7-bis(3-trihydroxymethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one,  6-dihydroxyl hecogenin,   3,7-bis(2-hydroxyethyl)-3,5-trihydroxy-2-(4-epoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyren-4-one, 6-oxo-difluoro-(16,20)-dioscin **for the manufacture of a composition for treating myasthenia.**

**ABSTRACT**

**A COMPOSITION FOR THE TREATMENT OF MYASTHENIA**

The invention relates to a composition formed for the treatment of myasthenia.

No figure.