**Description**

**A COMPOSITION CONTAINING SYNTHETIC COMPONENTS FORMED FOR SUPPRESSING RIBONUCLEOTIDE REDUCTASE**

**Technical Field**

The invention relates to a composition containing synthetic components formed for suppressing ribonucleotide reductase.

**State of the Art**

Ribonucleotide reductase is an enzyme that catalyzes the reduction of the ribonucleotides in all the existing organisms and the conversion of the same to the deoxyribonucleotides, which are the constituents of DNA. This reaction is also the rate-controlling step in the biosynthesis of DNA. This enzyme, having a quite important function, is comprised by two subunits called R1 and R2. The R2 unit, via the binuclear Fe (II) center present in its active site, reduces and activates the molecular oxygen, and as a result, a long-lasting tyrosyl radical forms in the R1 subunit. Exactly at this point, the journey of the electron to take place over a distance of 35 Angstrom\* begins (proton coupled electron transfer). During this long travel, one tryptophane and three tyrosine amino acids accompany the electron throughout its path, with the radical intermediate products they form. At the final destination, the cysteinil radical is formed, which is to carry out the reduction of ribonucleotide and which is located in the R1 subunit.

According to the state of the art, the invention no. EP1748767B1 entitled "1-(3-methyl-2,4-dimethoxyphenyl)-3-(2',4'-dihydroxyphenyl)-propane as a potent tyrosinase inhibitor” under the classification "A61K 31/015" comprises the compound 1-(3-methyl-2,4-dimethoxyphenyl)-3-(2',4'-dihydroxyphenyl)-propane. Said compound inhibits the activity of an enzyme with a binuclear active site, referred to herein as a binuclear enzyme, and said compound may be administered in an effective amount to an host in need thereof, wherein said compound may be synthesized and/or isolated from one or more plants. Examples of the binuclear enzymes include, but are not limited to tyrosinase, arginase, urease, cytochrome c oxidase, proton pumping heme-copper oxidase, bifunctional carbon monoxide dehydrogenase/acetyl-coenzyme A synthase, ribonucleotide reductase, metalo-beta-lactamase, H(+)-ATPase and alternative oxidase and bacterial phosphotriesterase.

Further, the invention no. EP1701621B1 entitled “Process for the production of compositions containing ribonucleotides for use as flavoring agents” discloses a process to produce a composition containing 5'-ribonucleotides wherein said process comprises subjecting a microorganism to autolysis under conditions at which a substantial part of the RNA remains in a form degradable into 5'-ribonucleotides and at which a substantial part of the RNA remains associated with the cell wall fraction. Said cell wall fraction is recovered by a solid/liquid separation method and the RNA associated with said cell wall fraction is converted to 5'-ribonucleotides. The invention also discloses the compositions containing 5'-ribonucleotides and the use thereof in the food or feed.

Further, the invention no. EP1480634B1 entitled “Selective androgen receptor modulators (SARMs) for treating benign prostate hyperplasia” provides a method of treating, preventing, suppressing, inhibiting or reducing the incidence of benign prostate hyperplasia in a male subject, by administering to the subject a selective androgen receptor modulator (SARM) and/or its analog, derivative, isomer, metabolite, pharmaceutically acceptable salt, pharmaceutical product, hydrate, N-oxide, or any combination thereof as described herein. This invention also provides a method of treating a subject suffering from hair loss, comprising the step of administering to the subject a therapeutically effective amount of a 5-a reductase enzyme type 1 and /or type 2 inhibitor, wherein said inhibitor is a selective androgen receptor modulator (SARM) and/or its analog, derivative, isomer, metabolite, pharmaceutically acceptable salt, pharmaceutical product, hydrate, N-oxide, or any combination thereof as described herein. This invention also provides a method of inhibiting a 5-a reductase type 1 and/or type 2 enzyme, comprising contacting the enzyme with an effective 5-a reductase inhibitory amount of a selective androgen receptor modulator (SARM) and/or its analog, derivative, isomer, metabolite, pharmaceutically acceptable salt, pharmaceutical product, hydrate, N-oxide, or any combination thereof, as described herein.

As a result, the presence of the need for a composition for suppressing ribonucleotide reductase 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 enable the suppression of DNA gyrase.

Another object of the invention is to enable the suppression of DNA ligase.

Another object of the invention is to enable the suppression of ribonucleotide reductase.

Another object of the invention is to enable the suppression of reverse transcriptase.

Another object of the invention is to enable the suppression of DNA polymerase.

Another object of the invention is to enable the suppression of hemagglutinin esterase.

Another object of the invention is to enable the suppression of integrase.

Another object of the invention is to enable the suppression of DNA methyltransferase.

In order to achieve the aforesaid advantages, the invention is a composition for suppressing ribonucleotide reductase, said composition being obtained by the components selected from the group comprising **3,7-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,5-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,7-bis(2-hydroxyethyl)3,5,7-dihydroxy-2-(4-methoxyphenyl)-8-(3-ethyl-2-buten-1-yl)-4H-1-benzopyrene-4-one** 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 containing synthetic components formed for suppressing ribonucleotide reductase. The composition according to the invention enables the suppression of **DNA gyrase, DNA ligase, ribonucleotide reductase**, reverse transcriptase, DNA polymerase, hemagglutinin esterase, integrase and DNA methyltransferase.

The composition according to the invention contains **3,7-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,5-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,7-bis(2-hydroxyethyl)3,5,7-dihydroxy-2-(4-methoxyphenyl)-8-(3-ethyl-2-buten-1-yl)-4H-1-benzopyrene-4-one**.

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

**1-90% 3,7-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one,**

**49-5% 3,5-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one,**

**50-5% 3,7-bis(2-hydroxyethyl)3,5,7-dihydroxy-2-(4-methoxyphenyl)-8-(3-ethyl-2-buten-1-yl)-4H-1-benzopyrene-4-one.**

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 suppressing ribonucleotide reductase and the manufacture thereof for this purpose.

**CLAIMS**

1. A composition for suppressing ribonucleotide reductase, said composition being obtained by the components selected from the group comprising **3,7-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,5-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,7-bis(2-hydroxyethyl)3,5,7-dihydroxy-2-(4-methoxyphenyl)-8-(3-ethyl-2-buten-1-yl)-4H-1-benzopyrene-4-one** that are used individually or in combinations.
2. A composition according to Claim 1 characterized in that it comprises **1-90% by weight 3,7-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one**.
3. A composition according to Claim 1 characterized in that it comprises **49-5% by weight 3,5-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one**.
4. A composition according to Claim 1 characterized in that it comprises **50-5% by weight 3,7-bis(2-hydroxyethyl)3,5,7-dihydroxy-2-(4-methoxyphenyl)-8-(3-ethyl-2-buten-1-yl)-4H-1-benzopyrene-4-one**.
5. Use of the components according to Claims 1 to 4 obtained individually or in combinations from the group consisting of **3,7-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,5-bis(2-hydroxyethyl)3,5,7-trihydroxy-2-(4-metoxyphenyl)-8-(3-methyl-2-buten-1-yl)-4H-1-benzopyrene-4-one, 3,7-bis(2-hydroxyethyl)3,5,7-dihydroxy-2-(4-methoxyphenyl)-8-(3-ethyl-2-buten-1-yl)-4H-1-benzopyrene-4-one for the manufacture of a composition for suppressing ribonucleotide reductase.**

**ABSTRACT**

**A COMPOSITION CONTAINING SYNTHETIC COMPONENTS FORMED FOR SUPPRESSING RIBONUCLEOTIDE REDUCTASE**

The invention relates to a composition formed for suppressing ribonucleotide reductase.

No figure.