**Description**

**A COMPOSITION COMPRISING PICRORETOSIDE DERIVATIVES THAT EXHIBIT THE CHARACTERISTIC OF SUPPRESSING HEMAGGLUTININ ESTERASE AND THE USE OF THIS COMPOSITION IN THE TREATMENT OF VIRAL INFECTIONS**

**Technical Field**

The invention relates to a composition comprising picroretoside derivatives for suppressing hemagglutinin esterase and the use of this composition in the treatment of viral infections.

**State of the Art**

Hemagglutinin is a glycoprotein present in the envelope of the influenza virus. It enables the virus to adhere to the cell. The influenza vaccines were developed against these molecules. The viruses carrying only the h1, h2, h3 types of the hemagglutinin antigen are known to cause the influenza disease and secretions in human.

Esterase is a hydrolase type enzyme that enables the esters to undergo chemical reaction with one water molecule to produce one acid and one alcohol molecule from these. There are different esterase types with various substrate specificities, protein structures and biological functions.

According to the state of the art, the invention no. EP2175881B1 entitled "Intradermal influenza vaccine" relates to virosome-based influenza vaccines for the manufacture of medicaments that are administered intradermally in humans. The invention provides (trivalent) compositions comprising low doses of hemagglutinin (HA) antigen in a virosomal preparation that fulfill the immune response standards with respect to seroconversion rates, GMT-fold increase and protection rates, for use in vaccination set-ups.

Further, the invention no. WO 1998/051304 entitled "Use of benzimidazole-2-carbamates for the treatment of viral infections and cancer" discloses a pharmaceutical composition that inhibits the growth of tumors and cancers in mammals and can be used to treat viral infections that comprises a fungicide is disclosed. The particular fungicide used is a benzimidazole derivative having formula (I), wherein R is selected from H, carboxyl (-CO2H), hydroxyl, amino or esters (-CO2R') wherein R' is selected from alkoxy, haloalkyl, alkenyl, and cycloalkyl wherein the alkyl groups have from 1-8 carbons or CH3CH2(OCH2CH2)n- or CH3CH2CH2(OCH2CH2CH2)n- or (CH3)2CH-(OCH(CH3)CH2)n- wherein n is from 1-3, the pharmaceutically active organic or inorganic salts thereof, or mixtures thereof.

Further, in the invention no. WO 1997/005873 entitled "Use of fluconazole for the treatment of viral infections", a pharmaceutical composition for the treatment of cancers or tumors in mammals is disclosed which comprises 2-(2,4-difluorophenyl)-1,3-bis(1H-1,2,4-triazol-1-yl)propan-2-ol and its derivatives. A chemotherapeutic agent can be used in conjunction with 2-(2,4-difluorophenyl)-1,3-bis(1H-1,2,4-triazol-1-yl)propan-2-ol and its derivatives as potentiators. 2-(2,4-difluorophenyl)-1,3-bis(1H-1,2,4-triazol-1-yl)propan-2-ol and its derivatives can also be used to treat viral infections, either alone, in conjunction with other anti-viral agents or with a potentiator.

Further, the invention no. EP1835937B1 entitled "Compositions and methods for treating viral infection" describes methods of treating viral disease using compounds that block inhibitory NK cell receptors, thereby reducing their inhibition of NK cell cytotoxicity in killing infected target cells. In one embodiment, the compound is an antibody binding, for example, one or more of the human KIR2DL1, KIR2DL2, and KIR2DL3 receptors. In another embodiment, the method further comprises administering a therapeutic antibody or fusion protein which binds an antigen expressed on cells infected with the virus.

As a result, the presence of the need for a composition for suppressing hemagglutinin esterase 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 hemagglutinin esterase.

Another object of the invention is to enable the suppression of tyrosine kinase.

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

In order to achieve the aforesaid advantages, the invention is a composition for suppressing hemagglutinin esterase, said composition being obtained by the components selected from the group comprising N-​​(6-hexa​​ethoxyphenyl)​-​​4-​​(2-di​methylfluoro[1,​​2-​​a]​pyridin-​​3-y​l)​-picroretoside, N-​​(4-​​ethoxyphenyl)​-​​4-​​(2-phenylchloro[1,​​2-​​a]​pyridin-​​4-y​l)​-picroretoside 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 comprising picroretoside derivatives that exhibit the characteristic of suppressing hemagglutinin esterase and the use of this composition in the treatment of viral infections. Said invention enables the suppression of hemagglutinin esterase, the suppression of tyrosine kinase and the suppression of RNA polymerase.

The composition according to the invention contains N-​​(6-hexa​​ethoxyphenyl)​-​​4-​​(2-di​​methylfluoro[1,​​2-​​a]​pyridin-​​3-y​l)​-picroretoside, N-​​(4-​​ethoxyphenyl)​-​​4-​​(2-phenylchloro[1,​​2-​​a]​pyridin-​​4-​​yl)​-picroretoside.

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

1-99% N-​​(6-hexa​​ethoxyphenyl)​-​​4-​​(2-di​​methylfluoro[1,​​2-​​a]​pyridin-​​3-y​l)​-picroretoside,

99-1% N-​​(4-​​ethoxyphenyl)​-​​4-​​(2-phenylchloro[1,​​2-​​a]​pyridin-​​4-​yl)​-picroretoside.

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 hemagglutinin esterase and the manufacture thereof for this purpose.

**CLAIMS**

1. A composition for suppressing hemagglutinin esterase, said composition being obtained by the components selected from the group comprising N-​​(6-hexaethoxyphenyl)​-​​4-​​(2-di​methylfluoro[1,​​2-​​a]​pyridin-​​3-y​l)​-picroretoside, N-​​(4-​​ethoxyphenyl)​-​​4-​​(2-phenylchloro[1,​​2-​​a]​pyridin-​​4-y​l)​-picroretoside that are used individually or in combinations.
2. A composition according to Claim 1 characterized in that it comprises 1-99% by weight N-​​(6-hexa​​ethoxyphenyl)​-​​4-​​(2-di​​methylfluoro[1,​​2-​​a]​pyridin-​​3-y​l)​-picroretoside.
3. A composition according to Claim 1 characterized in that it comprises 99-1% by weight N-​​(4-​​ethoxyphenyl)​-​​4-​​(2-phenylchloro[1,​​2-​​a]​pyridin-​​4-​​yl)​-picroretoside.
4. Use of the components according to Claims 1 to 3 obtained individually or in combinations selected from the group consisting of N-​​(6-hexa​​ethoxyphenyl)​-​​4-​​(2-di​​methylfluoro[1,​​2-​​a]​pyridin-​​3-y​l)​-picroretoside, N-​​(4-​​ethoxyphenyl)​-​​4-​​(2-phenylchloro[1,​​2-​​a]​pyridin-​​4-​​yl)​-picroretoside for the manufacture of a composition for suppressing hemagglutinin esterase.

**ABSTRACT**

**A COMPOSITION COMPRISING PICRORETOSIDE DERIVATIVES THAT EXHIBIT THE CHARACTERISTIC OF SUPPRESSING HEMAGGLUTININ ESTERASE AND THE USE OF THIS COMPOSITION IN THE TREATMENT OF VIRAL INFECTIONS**

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