Hinoki Cypress (Chamaecyparis Obtusa) Leaf Oil

-Natural Essential Oil with Antibacterial activity-

The essential oil is extracted via steam distillation process from leaves of cypress trees grown in Kii Peninsula including Nara, Mie, and Wakayama Prefectures. The main component is Hinokitiol (or 4-Isopropyltropolone with chemical formula of $C_{10}H_{12}O_2$) that has antibacterial property.

We use the aroma diffuser to diffuse the oil in this room so that you can enjoy the refreshing fragrance of forest green, while inhibiting bacterial and viruses.

(Hinoki cypress leaves have been used for removal of evil karma in Shugendo ritual fire ceremony.)

(Hinoki cypress leaves have been used for food preservation since ancient times.)

<u>Antibacterial / Antivirus performance</u>

1) Hinokitiol with a concentration between 100 and 200 ppm (μg/ml) may inhibit the growth of Salmonella typhi, Escherichia coli, Vibrio cholerae, Bacillus dysentericus, and Staphylococcus, and the same with concentration of 50 ppm (μg/ml) may inhibit the growth of Corynebacterium diphtheriae, according to the study by Dr. Kyohei Suetsugu. (Source: Journal of the Kumamoto Medical Society 24)

2) In dermatological treatment, Hinokitiol has nontoxic, excellent efficacy against fungus that causes athlete's foot or tinea pedis, according to the study by Dr. Jiro Ikegami. (source: Journal of Niigata Medical Society 68)

3) Hinokitiol is characterized by its wide range of antibacterial spectrum (the range of different bacterial and microorganisms that Hinokitiol inhibits or kills them) and the low level of minimum inhibitory concentration (MIC-- the lowest concentration of Hinokitiol that will inhibit the visible growth of a bacterium or a microorganism after overnight incubation). According to the study by Dr. Toshihiro Okabe disclosed in Fragrance Journal 2 (1989), the antibacterial efficacy was confirmed with a concentration of 2.5 to 200 μ g/ml.

4) According to antibacterial activity test conducted with an automatic disinfectant robot that diffuses Hinokitiol solution with the concentration of 250 ppm, antibacterial activity at a percentage of 95 to 100% was found against Staphylococcus aureus, MRSA, Escherichia coli, and Pseudomonas aeruginosa. The robot was equipped with a diffusing nozzle with diameters of 10 to 100 μ and diffuses the solution at the amount of 10 ml per 10 cm^2.

5) With respect to antivirus efficacy of Hinokitiol, some patents (shown below) were applied and for the past 20 years. Unfortunately, no information on the inhibitory effect to the novel coronavirus have been reported so far (because any laboratory institutes have not captured the virus stain and/or not yet developed safety measures to handle it, or probably because it is a confidential military matter.) However, we suppose through supportive data that Hinoki cypress leaf oil can inhibit the novel coronavirus. And we reportedly know that some groups from China have been struggling for capturing Hinokitiol. Maybe they can imagine the efficacy through healthy experience in a forest or a mountain torrent filled with a lot of trees and negative ions. We will continue to research the evidence of the efficacy of Hinoki cypress leaf oil against the novel coronavirus.

Patent information

(1) JP 2005-68089 A: coronavirus disinfectant by Hinoki Clinical
(2) JP 2009-173555 A: Protection spray against human influenza by JCS.
(3) JP 2009-167105 A: Protection spray against avian influenza by JCS.
(4) JP 2006－158361: livestock protection sheet against highly pathogenic avian influenza by Immunobacs Japan.

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