

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
11 May 2006 (11.05.2006)

PCT

(10) International Publication Number
WO 2006/050519 A1

(51) International Patent Classification:
A01N 43/16 (2006.01) A01P 17/00 (2006.01)

[US/US]; 77 Allsmeer Drive, West Grove, Pennsylvania 19390 (US).

(21) International Application Number:
PCT/US2005/040146

(74) Agent: **LANGWORTHY, John, A.**; E. I. DU PONT DE NEMOURS AND COMPANY, LEGAL PATENT RECORDS CENTER, 4417 Lancaster Pike, Wilmington, Delaware 19805 (US).

(22) International Filing Date:
3 November 2005 (03.11.2005)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
60/624,579 3 November 2004 (03.11.2004) US

(71) Applicant (for all designated States except US): **E.I. DUPONT DE NEMOURS AND COMPANY** [US/US];
1007 Market Street, Wilmington, Delaware 19898 (US).

(81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, LY, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NG, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SM, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

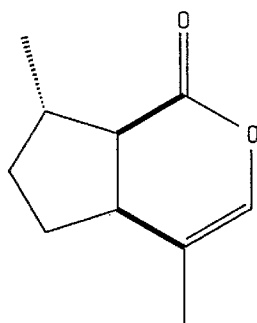
(72) Inventor; and

(75) Inventor/Applicant (for US only): **SCIALDONE, Mark**

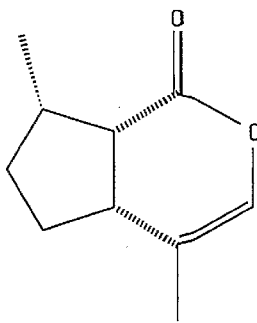
(84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,

[Continued on next page]

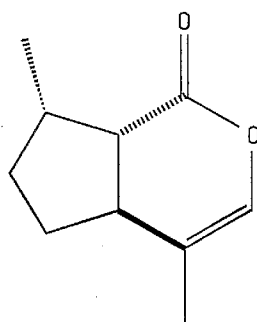
(54) Title: INSECT REPELLENT COMPOSITIONS COMPRISING DIHYDRONEPETALACTONE, AN ALCOHOL, AND AN ESTER



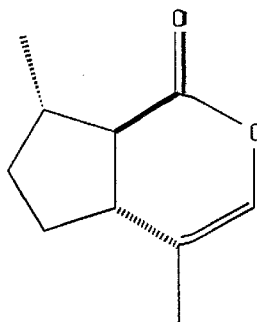
(4a,7S,7aR) nepetalactone
(cis, trans-nepetalactone)



(4a,7S,7aR) nepetalactone
(cis, cis-nepetalactone)



(4a,7S,7aR) nepetalactone
(trans, cis-nepetalactone)



(4a,7S,7aR) nepetalactone
(trans, trans-nepetalactone)

(57) Abstract: Dihydronepetalactone, a minor natural constituent of the essential oil of catmints (*Nepeta* spp.) such as *Nepeta cataria*, has been identified as an effective insect repellent compound. Synthesis of dihydronepetalactone may be achieved by hydrogenation of nepetalactone, the major constituent of catmint essential oils. This compound, and compositions thereof, which also has fragrance properties, may be used commercially for its insect repellent properties.



ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.