

Bolvir (Girona), 12.VII.2000, Espadaler leg. (10,1) ; Castiello de Jaca (Huesca), 14-IX-1978, Espadaler leg. (10, 1) ; Ger (Girona), 20-VI-1973, Espadaler leg. (9,1) ; Lles (Girona), 1992, 10-XI-1998, Espadaler leg. (20,2) ; Meranges (Girona), 10-XI-1998, Espadaler leg. (10,1) ; Taull (Lleida), 9-VIII-1974, Espadaler leg. (10,1) ; Peredilla (León), 8-VI-1983, Espadaler leg. (4,1). Yugoslavia : Belgrade, 8-IV-1988, Montull leg. (2,1). Sexuals have been available in a few samples. France : Ostwald (Bas Rhin), 30-V-1981, Muñoz leg. (one queen). Germany : Berlin, 30-VIII-1984, Escolà leg. (one male). Italy : Trento, Poldi leg. (one queen, one male). Japan : Tsukuba (Ibaraki Pref.), 21-V-2000, Akino leg. (60 males and 40 queens from two nests). Spain : Oza (Huesca), 25-VII-1979, Mas leg. (3 queens) ; San Juan de la Peña (Huesca), 26-VII-1977, Pedrocchi leg. (one queen) ; Plà Traver, Falgars (Girona), 12-VIII-1985, Suñer leg. (3 males) ; Villasrubias (Salamanca), 17-VII-1983. Lizana leg. (one queen).

**Measurements and indices :** head width (HW) : maximum width of the head excluding eyes in full face view. Head length (HL) : length from the midpoint of the anterior clypeal border to the midpoint of the occipital border, in full face view. Scape length (SL) : maximum scape length, excluding radicle. Cephalic index (CI) :  $HW \times 100/HL$ . Scape index (SI) :  $SL \times 100/HW$ . Specimens were measured with a stereomicroscope under a magnification of 60x. Hair length was measured at  $900 \times$  by an optical microscope. A minimum of two workers were measured for every sample, usually up to ten workers if possible. Data are given as means  $\pm$  S.E. One-way ANOVA was used directly on raw data, without any transformation and, following SEIFERT (1992), a discriminant analysis was done on nest means for European and Japanese samples using STATISTICA 5.5 (StatSoft, Tulsa, Oklahoma, U.S.A.).

**Chemical analysis :** *Lasius* workers were collected from 3 colonies in Japan (Kyoto, 6-X-1998, T. Akino leg. ; Kyoto, 10-VIII-1999, T. Akino leg. ; Tsukuba, 7-X-2000, T. Akino leg.) and two colonies in Germany (Darmstadt, A. Buschinger leg., no collecting date in a label). From each colony, 10 workers were dissected to separate into three body parts (head, thorax, and gaster), and 5 workers were dissected to excise the mandibular gland from body. Each body part and the gland were separately immersed in 1 ml of hexane for 10 min. One worker equivalent of each extract was used for gas chromatography-mass spectrometry (GC-MS) analyses. The remains were further chromatographed on approximately 1g of silica gel (230-400 mesh, Merck), successively eluted with 3 ml each of hexane, 10 and 30% ether-in-hexane, and ether.

## RESULTS AND DISCUSSION

**Morphology :** for the worker caste, our biometrical measurements show that for a given head length and head width, scapes are proportionately longer in Asian samples (Figs. 1 A, B). The head is proportionately longer in Asian samples (Fig. 1 C). Correspondingly, head indices (Fig. 1 D) are also distinct and statistically different (ANOVA) (Table 1). Length of hairs, as readily noted by WILSON (1955) is longer in Asian samples, specially on the dorsal border of petiole : the longest hair on petiole is longer than half the maximum width of scape (absolute maximum hair length  $0.122 \pm 0.013$  mm). In European samples, hairs are shorter than half the maximum width of scape (absolute maximum hair length  $0.085 \pm 0.007$  mm). In Asian samples, some pronotal hairs are sickle shaped, a striking form that we have not seen in any European sample.