

$$Cv \text{ score} = 11.913 W + 13.458 PPW - 25.889 + 0.192 H$$

M. scabrinodis < -0.91 > *M. vandeli*. Confidence 99.97%

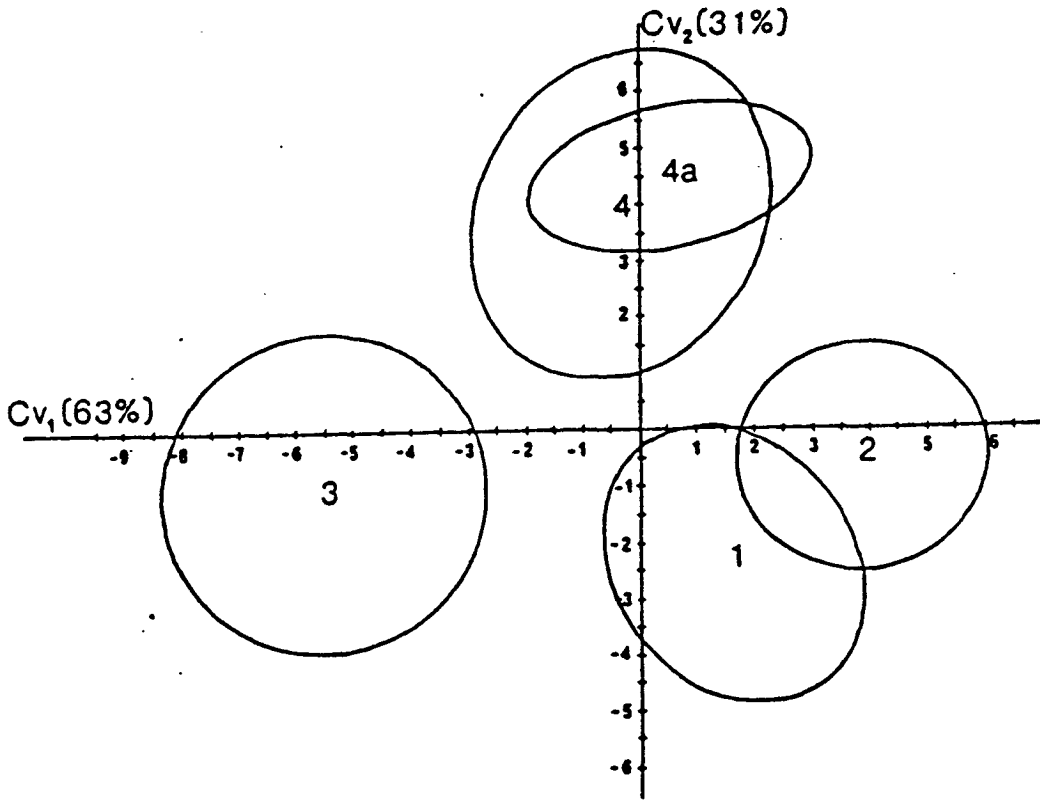


Figure 3: Distribution of the Cv scores for 4 groups of queens: 60 *M. scabrinodis* (1), 60 *M. sabuleti* (2), 59 *M. hirsuta* (3) and 40 "*M. vandeli*" (4). 19 *M. vandeli* (4a) from 2 other French sites are included: these cannot be distinguished from (4). The ellipses represent the 95% confidence limits.

With only 3 measurements and a pocket calculator, this becomes a practicable method of identification for non-specialists. Obviously, if a different pair is considered (eg *M. vandeli*/*M. sabuleti*) then the components of the reduced variable set would be different. As a general rule, when more species are discriminated between together, more measurements must be used.

MALES

Males of the putative *M. vandeli* were caught at all 3 sites in France: the Hautes Alpes, Haute Savoie and Massif Central. Cv analysis was used to compare these with the sets of males of *M. scabrinodis*, *M. sabuleti* and *M. hirsuta* that were used by Elmes (1978). Nine males of *M. hirsuta* from DDR were also included in the analysis. This confirmed the visual impression that *M. scabrinodis* is quite distinct from the other 3 species; its most obvious