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Association of Institutes for Bee Research
Report of the 55th Seminar in Hohen Neuendorf
11–13 March 2008

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Association des Instituts de Recherche sur les abeilles
Comptes rendus du 55e Congrès à Hohen Neuendorf
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List of reports (* after the title indicates that no abstract of this report is published).

Verzeichnis der Referate (* bedeutet, dass zu diesem Titel keine Zusammenfassung aufgeführt ist).

Liste des communications (* après le titre indique que le résumé de la communication n'est pas publié dans ce numéro).

Invited talk
Einführungsvortrag
Conférence inaugurale

1. Parasites and humoral defense in the model of *Bombus* (Bumblebees). *P. Schmid-Hempel**

Parasiten und Immunabwehr im Modellfall von *Bombus* (Hummeln).

Parasites et défense humorale chez le modèle *Bombus* (bourdons).

Biology, physiology, behavior

Biologie, Physiologie, Verhalten

Biologie, physiologie, comportement

2. Why do pollen foragers perform better in associative learning than nectar foragers? *R. Scheiner*

Warum lernen Pollensammlerinnen besser als Nektarsammlerinnen?

Pourquoi les butineuses de pollen sont-elles plus performantes dans l'apprentissage associatif que les butineuses de nectar ?

3. "Sniffer Bees": Can honeybees learn the odor of queens with different kin relation? *R. Alkattea, H. Steidle, P. Rosenkranz*

„Schnüfflerbienen": Können Bienen den Duft von Königinnen mit unterschiedlichen Verwandtschaftsbeziehungen lernen?

"Abeilles renifleuses": les abeilles peuvent-elles apprendre l'odeur des reines ayant des parentés diverses ?

4. Sleep and Memory – why do bees sleep? *L. Bogusch, R. Menzel**

Schlaf und Gedächtnis – Warum schlafen Bienen?

Sommeil et mémoire – pourquoi les abeilles dorment-elles ?

5. Localization of learning and memory processes within the honeybee brain: local anesthesia of the mushroom bodies. *B. Grünewald, C. Bartsch, M. Giurfa, J.-M. Devaud*

Lokalisierung von Lern- und Gedächtnisleistungen im Bienenhirn: Lokalanästhesie der Pilzkörper.

Localisation des processus d'apprentissage et de mémoire dans le cerveau de l'Abeille : anesthésie locale des corps pédonculés.

6. Experience contributes to an improvement of hygienic behaviour in honeybee workers, *Apis mellifera*. *S. Härtel, H.M.G. Lattorff, M.O. Schäfer, J.S. Pettis**

Beitrag von Erfahrung zur Verbesserung des hygienischen Verhaltens von Honigbienenarbeiterinnen.

L'expérience contribue à améliorer le comportement hygiénique des ouvrières d'abeilles.

7. Heatseeker – heat as a trigger for trophallactic activities in the honeybee. *R. Basile, J. Tautz**

Hitzesucher – Hitze als Auslöser trophallaktischer Aktivitäten bei Honigbienen.

(Institut für Zoologie, Karl-Franzens-Universität Graz, 8010 Graz, Austria)

Various methods to raise honeybee larvae artificially are described in the literature. We used a method described by Aupinel et al. (2005) (Bull. Insectol. 58, 107–111). The goal of this study was to compare the increase in weight of artificially and naturally raised larvae. Larvae of age 5–10 h were transferred to plastic queen cups in the lab, while their sisters were immediately put back in their mother colonies for further development. The investigations were carried out in June–July 2007 using three colonies. After 1–8 days of development the individuals were taken out of their plastic cups or brood cells in the comb and weighed. We also compared the weight of artificially and naturally raised adult bees 0–0.5 h after their emergence. In all three colonies, the naturally raised larvae were significant heavier (*t*-test; $P < 0.05$) than their artificially raised sisters of the same age, at least after the third day of development. Naturally raised larvae were capped inside the colony at the age of 5–5.5 days, and they started to elongate and reach their maximum weight of 154.2 mg (± 10.4) at this time. During the following days, a significant decrease in weight was measured. Artificially raised larvae reached their maximum weight (127.9 mg, ± 30.6) after 6–6.5 days of development, and started to elongate at the age of 7.5–8.5 days. A significant decrease of weight was measured in only one colony from day 7 to 8. Comparing the weight of the two groups we found a significantly reduced increase of weight and also a delay in larval development in the artificially raised larvae. Artificially raised individuals appear to be able to compensate for this lag, because we found no significant differences when comparing the weights of the adult bees of the two groups after emergence (artificially: 108.7 ± 13.2 mg versus naturally: 110.5 ± 9.1 mg).

20. South-Eastern limit of distribution of *Apis mellifera meda* in Iran. *M. Pour Elmi*[1,2], *S. Fuchs*[2] ([1]Islamic Azad University Tschalus, Iran; [2]Institut für Bienenkunde (Polytechnische Gesellschaft) FB Biowissenschaften der Goethe-Universität Frankfurt am Main, Oberursel, Germany)

Apis mellifera meda, first described in 1929 by Skorikov, was shown by Ruttner et al. (1985) to consist of six subpopulations. Of these, 4 are from the main distribution area, Iran; the other two are from Iraq and Eastern Turkey. Only a few further studies added to this status. Here, we investigate 7 bee samples from 3 locations in Sistan Belutschistan, close to the border of Pakistan. Until now it was assumed that *Apis mellifera* is absent in this region because of the dry-hot climate. Three samples from Iranshar, one from Khash and 3 from Zahedan were measured in 38 morphometric characters taken from each of 10 workers of each colony. Data were analysed by discriminant analysis and cluster analysis, and were related to data from 67 samples from *A. m. meda* and 128 samples of adjacent subspecies taken from the Oberursel data bank. The morphometric analysis showed a clear separation between the samples from Belutschistan and the other samples from *A. m. meda*. In particular, they were characterized by smaller body size, shorter and broader forewings and shorter legs in relation to *A. m. meda* from Iran. In many measurements they were intermediate to the *A. m. meda* bees of Iraq, but do not share their narrower wings and high wax mirror index. Inclusion of further subspecies into the analysis showed that the bees of Belutschistan, notwithstanding their particularities, unequivocally belong to *A. m. meda.* Morphometric distances to the next related subspecies, *A. m. anatoliaca* and *A. m. syriaca*, were about double to that to *A. m. meda* from southeastern Iran or from Iraq. The presence of *A. m. meda* bees in Sistan Belutschistan thus further extends the eastern limit of distribution of *A. mellifera* by about 300 km from the until now documented easternmost occurrence in Kerman, South-East Iran. At the same time, it enriches the spectrum of *A. m. meda* by a clearly deviating subpopulation, whose peculiarities and similarities to *A. m. meda* from Iraq may be interpreted as adaptations to the extremely dry-hot climate. This subpopulation is separated by still another 600 km from the known range of *A. cerana*, to which it showed no morphometric relation, but possibly this distance might be even less.

21. The first *Apis florea* discovery in Jordan. *N. Haddad*[1], *J.R. de Miranda*[2] ([1]National Center for Agricultural Research and Technology Transfer, Baqa' 19381, Jordan, drnizarh@yahoo.com; [2] School of Biological Sciences, Queen's University Belfast, 97 Lisburn road, Belfast, BT9 7BL, Northern Ireland)

The dwarf honeybee *Apis florea* is originally native to South East Asia, but in recent years its geographic range has been steadily expanding westwards, both naturally and accidentally via global transportation (Mogga and Ruttner, 1988). It has been reported from in Iraq (1990), Oman (1990), Yemen (1990), Saudi Arabia (1990) and Sudan (1983). Throughout its range in the Arabian