**Supplementary Materials**

Ref: IB_2019_87_R2

Hydroxylation patterns associated with pheromone synthesis and composition in two

honey bee subspecies *Apis mellifera scutellata* and *A. m. capensis* laying workers

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Supplementary Table 1: Primers used in qPCR of genes in the mandibular glands responsible for hydroxylation of stearic acid in honeybee mandibular glands

Gene/Primer name	Primers (5' to 3')	Reference
CYP4G11	GGC TGT AAT GAA GAT GTG CGA C	Mumoki *et al* 2018
	GTG CGC TAT TAT CAA TGA TGT TAC G	
elF3-S8	TGA GTG TCT GCT ATG GAT TGC AA	Mao *et al* 2011
	TCG CGG CTC GTG GTA AA	
CYP6BD1	CAA ATT CGA AGG TGA TGC ATT GTT G	This study
	ACA CCT TCA TAA GTC ATT CCA TGT	
CYP6AS8	GAC GTA ACA AAT GAA TTC TTG GCA G	This study
	GGT TTC GTA TCT CCA TTC TCC GTC	
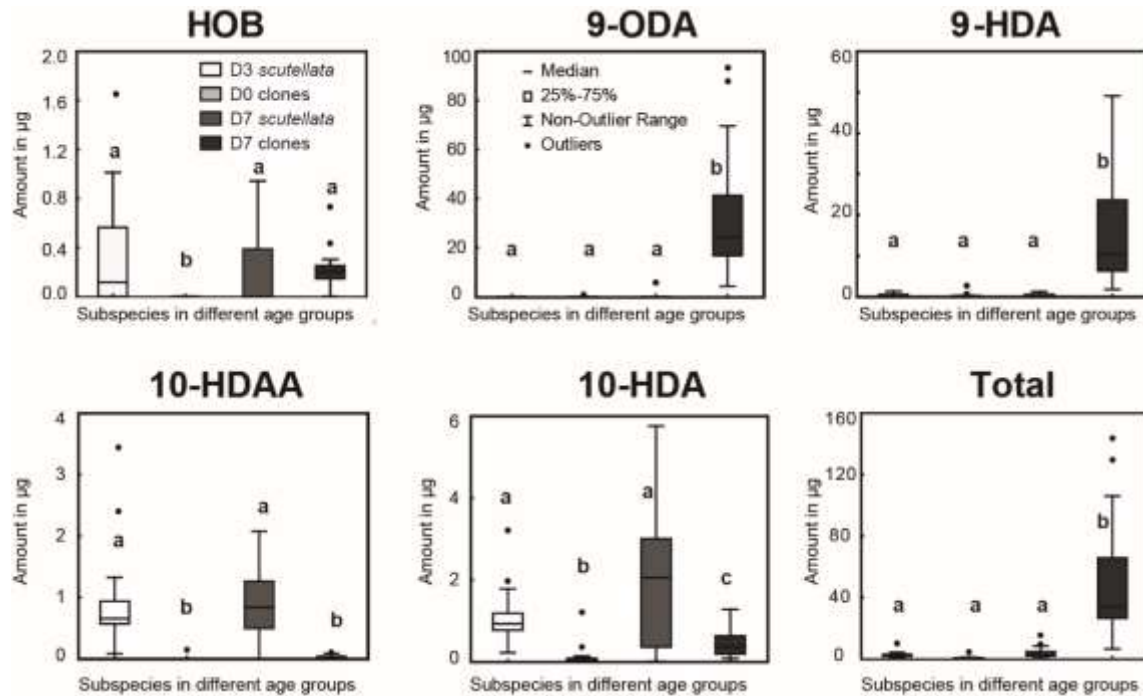
Supplementary Figure 1: Amounts (µg) of the mandibular gland pheromone components from; day 3 *A. m. scutellata* (open bars), day 0 *A. m. capensis* clones (stippled bars), day 7 *A m. scutellata* workers (grey bars) and day 7 *A. m. capensis* clones (black bars)(━ = median, ▯ = 25-75%, ⊥ = min-max). The letters above the bars denote differences in statistical significance within the groups; KWA H (3, N= 78) > 22.57244 p <0.0001).
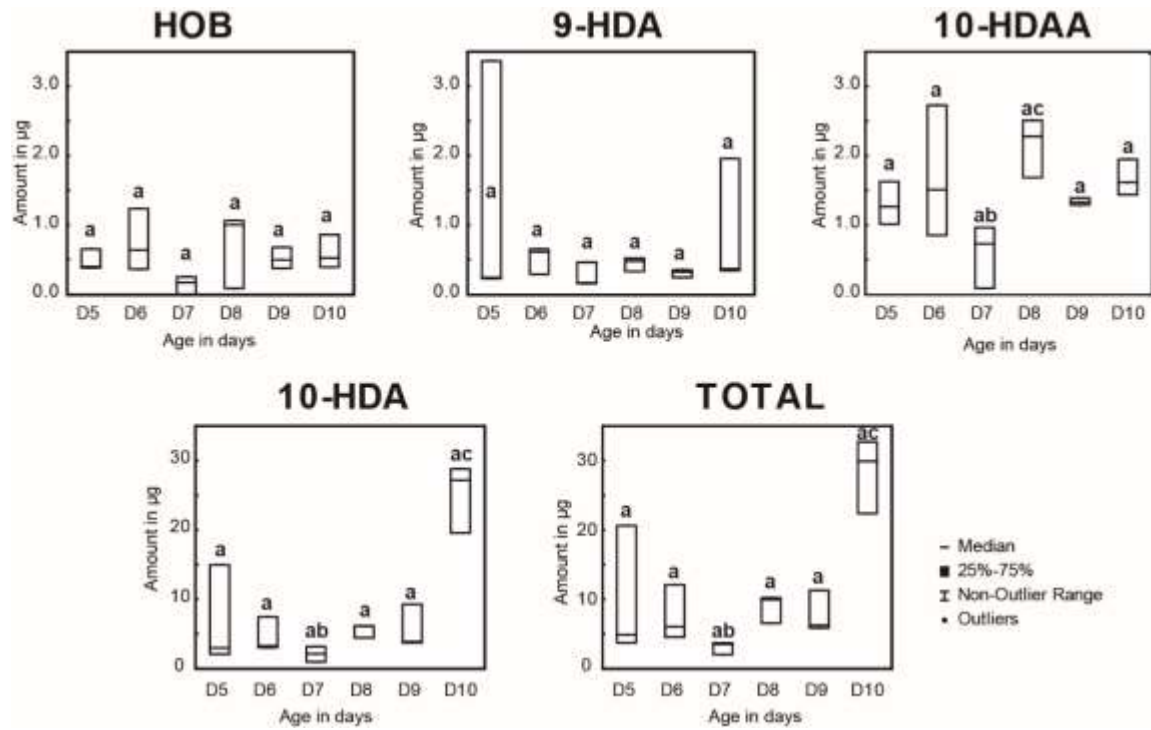
Supplementary Figure 2: Amounts (in µg) of the mandibular gland pheromone components from queenright *A. m. scutellata* nurse bees from five to ten days old (— = mean, ▯ = 25-75%, ⊥ = min-max, ▪ = outliers).The letters above the bars denote differences in statistical significance within the groups. 9-ODA and HVA were not detected in any of the samples.