Secretions of three different glands (mandibular gland, labial gland, and Dufour’s gland) of virgin queens of five bumblebee species (*Bombus lucorum*, *B. lapidarius*, *B. hypnorum*, *B. pascuorum*, and *B. terrestris*) were analysed. Around 200 compounds were identified in the secretions. The compositions of the secretions of labial and mandibular glands were species-specific. Dufour’s gland of all species produced mainly hydrocarbons, both saturated and unsaturated, the proportions of which differed quantitatively between the species studied.

**Key words:** Bombus, Virgin Queens, Sex Pheromone