

We examined aggregative behavior of hatchlings of the desert locust *Schistocerca gregaria* emerging from solitaria egg pods that had been incubated in sand previously used for consecutive ovipositions by gregarious females. Hatchlings derived from such eggs were significantly more gregarious than those derived from pods laid in clean sand. The gregarizing effect of the sand-associated factor originating from 3, 5, or 10 ovipositions by gregarious females increased in a dose-dependent fashion. Washing the sand with organic solvents following such ovipositions, or flushing it with nitrogen gas, led to substantial loss of its gregarizing effect, showing that the active signal is volatile and of medium polarity. The gregarizing activity of the exposed sand correlated with the presence of C-8 unsaturated ketones, (Z)-6-octen-3-one and (E,E)-3,5-octadiene-2-one and its E,Z isomer, previously shown by us to form part of the releaser pheromone system that mediates group oviposition in *S. gregaria*. These ketones were present in relatively large amounts in the eggs obtained from egg pods of gregarious females and were also detected in the extracts of accessory glands of gregarious females, a candidate source of the gregarization factor. It is proposed that the pheromone is secreted at the onset of oviposition. This would account for its distribution predominantly within the eggs and surrounding sand at the site of oviposition. The study sheds new light on the pheromonal mechanism associated with transgenerational transmission of gregarious characters in crowded *S. gregaria* populations and provides yet another case in this insect of dual releaser and primer roles played by the same pheromone blend.