

In a previous study, comparison of the behavior of teneral *Glossina morsitans morsitans* on waterbuck, *Kobus defassa* (a refractory host), and on two preferred hosts, buffalo, *Syncerus caffer*, and ox, *Bos indicus*, suggested the presence of allomones in the waterbuck odor. Examination of the volatile odors by coupled gas chromatography-electroantennographic detection showed that the antennal receptors of the flies detected constituents common to the three bovids (phenols and aldehydes), as well as a series of compounds specific to waterbuck, including C8-C13 methyl ketones, delta-octalactone, and phenols. In this study, behavioral responses of teneral *G. m. morsitans* to different blends of these compounds were evaluated in a choice wind tunnel. The flies' responses to known or putative attractant blends (the latter comprising EAG-active constituents common to all three animals and those common to buffalo and ox, excluding the known tsetse attractants, 4-methylphenol and 3-n-propylphenol), and to putative repellent (the blend of EAG-active compounds specific to the waterbuck volatiles), were different. A major difference related to their initial and final behaviors. When a choice of attractant blends (known or putative) and clean air was presented, flies initially responded by flying upwind toward the odor source, but later moved downwind and rested on either side of the tunnel, with some preference for the side with the odor treatments. However, when presented with a choice of waterbuck-specific blend (putative repellent) and clean air, the flies' initial reaction appeared random; flies flew upwind on either side, but eventually settled down on the odorless side of the tunnel. Flies that flew up the odor plume showed an aversion behavior to the blend. The results lend further support to previous indications for the existence of a tsetse repellent blend in waterbuck body odor and additional attractive constituents in buffalo and ox body odors.