We quantified the relative importance of visual and chemical channels in recognizing conspecifics when visual and chemical cues are presented alone or combined. We explored the speed and the accuracy of visual and chemical nestmate recognition and we explored how wasps integrate these sensory modalities to minimize the risk of colony intrusion by outsiders.

**AIM**

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**METHODS**

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**DISCUSSION**

Social insects have evolved highly developed recognition systems enabling them to accept nestmates but reject alien conspecifics [1]. Chemical communication plays a crucial role in this ability [1]. Recently it was discovered that visual quality signals and individual recognition also play a role in some species of social wasps [2-4]. In the primitively eusocial social wasp *Liostenogaster flavolineata* (Vespidae: Stenogastrinae), individuals differ in their cuticular hydrocarbon profiles according to colony membership and each female also possesses a unique facial pattern. Since both chemical and visual channels mediate the recognition abilities in these wasps, this species represents a unique model to understand how vision and olfaction are integrated and the extent to which wasps prioritize one channel over the other to discriminate aliens and nestmates.

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