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Establishing alighting preferences and species transmission differences for *Pea seed-borne mosaic virus* aphid vectors

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Highlights

- This study provides important new information which enhances understanding of virus-vector relationships in the PSbMV-pea pathosystem.
- For the five aphid species often found landing in pea crops in which PSbMV was spreading, it revealed marked differences between their inherent abilities to transmit PSbMV between infected and healthy field pea plants. *A. craccivora* and *M. persicae* were efficient vectors, but *A. kondoi* and *R. padi* were inefficient, and *L. erysimi* was not a vector. *A. kondoi* was shown to transmit PSbMV for the first time.
- In free-choice assays, there was a general preference of *R. padi* alatae to alight on PSbMV-infected pea and faba bean plants at early times (30 min to 4 h) after their release, followed by a shift to alighting preferentially on mock-inoculated plants after 24 h. In contrast, *M. persicae* alatae exhibited a preference to alight on mock-inoculated over PSbMV-infected pea plants at all times tested (30 min to 48 h) after their release.

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