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A new species of *Aphis* (Hemiptera:Aphididae) in Missouri on St. John's Wort, *Hypericum kalmianum*, and re-description of *Aphis hyperici* Monell

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Abstract

Aphis mizzou, n. sp. is described from specimens collected in Missouri, USA, on *Hypericum kalmianum* (Clusiaceae). Both apterous and alate viviparae are described and illustrated and a key is provided to apterae of the six species of *Aphis* that feed on *Hypericum*. Neighbor-joining analysis of cytochrome oxidase (COI) and nuclear elongation factor (EF1- α) indicated a close relationship of the new species with *Aphis hyperici* but verified its distinctness, the pairwise sequence divergence for COI between these two species being 3.2%. In addition, *Aphis hyperici* Monell is redescribed, including first descriptions of the fundatrix, ovipara and alate male of that species.

Key words: *mizzou*, morphology, genes, sequences, host plant

Introduction

Hypericum (Clusiaceae) is a genus of perennial shrubs with a worldwide distribution. There are 51 native species in the USA (USDA-NRCS 2008) and most are commonly referred to as St. John's wort. Six species of *Aphis* (Hemiptera: Aphididae) are presently known to feed on *Hypericum* spp.: *A. chloris* Koch is originally from Europe and Asia but has been introduced to Australia, Canada, and South Africa for the biological control of *H. perforatum* (Briese 1989; Harris & Maw 1984); *A. gossypii* Glover is highly polyphagous with a worldwide distribution; *A. hyperici* Monell in Riley & Monell feeds primarily on young leaves of *Hypericum* spp. and was known only from Illinois and Missouri but more recently found in California (Gillian Watson, pers. comm.), USA; *A. hypericiphaga* Pashtshenko feeds on the underside of leaves of *Hypericum* spp. in East Siberia and North Korea; *A. hypericiradicis* Pashtshenko feeds on the base of stems and roots of *Hypericum* spp. in East Siberia; and *A. pavlovski* Narzikulov feeds on roots of *H. scabrum* in Tajikistan (Blackman & Eastop 2006). A previously undescribed species of *Aphis* was recently collected by B.P. on *H. kalmianum* on the University of Missouri campus in Columbia (Boone County). This species was observed in association with *A. hyperici*, which is commonly found on *H. kalmianum* and *H. prolificum*, perennial ornamentals. Since the original description of *Aphis hyperici* is rather limited in scope we have included an expanded description of it, including first descriptions of the fundatrix, ovipara and alate male.

Materials and Methods

Aphid collections: Collection data for all the species included in this study are provided in Table 1.

Morphometrics: Photographs of the mounted specimens were taken using a Leica DM 2000 digital camera and SPOT Software 4.6 (Diagnostic Instruments, Inc). The latter was used to take all measurements for this study (Table 2).