First record of *Resseliella salvadorae* (Rao) (Diptera: Cecidomyiidae) and its parasitoid from stem and leaf galls of *Salvadora persica* L. Sudan

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Salvadora persica L. (Salvadoraceae), commonly known as Tooth Brush Tree, Mustard Tree or Salt Bush, is an evergreen shrub. Its leaves are oblong-elliptic to almost circular, light to dark green, rather fleshy. It is widespread and native to many countries including India (locally known as Pilu or Jhak) and Sudan (locally known as Arak). It is a xerophytic plant, occupying desert floodplains and also common in river and stream bank vegetation. It is highly salt tolerant thus very useful in improvement of salt affected black soils, eco-restoration of the degraded saline wastelands. It can be used for sand dune reclamation. It is also a medicinal plant and almost all the plant parts have been found to be medically important and possess pharmaceutical applications. The plant does not suffer from any major pests and diseases (Rao et al. 2003), however, its leaves and stems are subjected to gall formation by *Resseliella* (=*Thomasiniana*) *salvadorae* (Rao) (Diptera: Cecidomyiidae) reported from India (Rao 1951, 1971; Mani 1973; Sharma et al. 2003; Sharma 2009). *Platygaster salvadorae* Rao (Hymenoptera: Platygastridae: Platygastrinae) has been recorded parasitizing the gall maker (Mani 1973). The present report is a first record of galls, gall causing insect and its parasitoid on *Salvadora persica* L. from Khartoum State, Sudan.

Materials and Methods

Galls were noticed on stem and leaves of coppice of *Salvadora persica* in the vicinity of Shambat Research Station, and National Botanic Garden in Khartoum North, Sudan (15^{0}31'N & 32^{0}35'E) during the month of October 2010. The gall formed areas of the plant were covered with finely perforated plastic bags to monitor the emergence of the gall maker and its parasitoids.

Galls, cross sections through the galls, insect adults emerged from the galls were examined under a digital microscope (Digital Blue QX5 computer microscope, (www.digiblue.com) and their images captured.

Results and Discussion

Leaf gall (Image 1 a–f): Epi-hypophyllous, spherical, mostly adjacent to the midrib (Image 1a). Larval chamber cylindrical, more than one chamber per gall containing single larva inside (Image 1c).

Stem gall: Subglobose, ovoid or fusiform, glabrous, grayish in color, hard, woody, indehiscent, persistent swellings of tender branches, 5–10 mm long and 5mm thick (Image 1d). One to six chambers per gall were noticed (Image 1e). As many as 13 galls were produced along 10cm length and 5mm thick stem. Larva seen in one of the stem gall chamber (Image 1f).

Gall midge larva and adult are shown in Image 2 a–d. Initially, hymenopterous parasitoids (platygastrid) (Image 3 a–d) were recovered from the perforated plastic bags followed by adult gall midges (Images 2c,

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Image 1. Leaf gall and cecidomyiid larvae. © Moawia Mohamed
(a) leaf gall, (b) pupal skin on exit hole on underside of the leaf, (c) leaf gall section showing two chambers and cecidomyiid larvae, (d) stem galls, (e) longitudinal section through stem galls and (f) cecidomyiid larva in a stem gall

Image 2. Gall midge larva and adult. © Moawia Mohamed
(a) developing gall midge larva, (b) gall midge pupa, (c) gall midge adult (male) and (d) gall midge adult (female).

male and 2d, female). However, the parasites recovered in the present study key out to genus *Platygaster* Latreille (Rajmohana pers. comm. 15 June 2011).

Salvadora being important plant from medicinal point of view and its usefulness in ecorestoration of waste lands warrants detailed studies.

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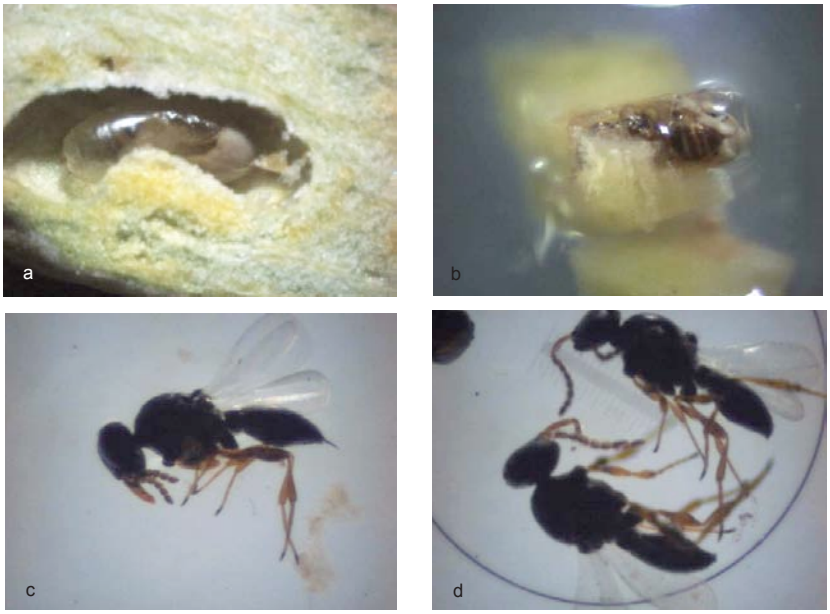

Figure 3. Parasitoid wasp. © Moawia Mohamed
(a) inside the midge larva, (b) inside the midge larva freed from the gall, (c) adult (female) and (d) adults (males).

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