



When Charles Darwin was sent a specimen of the Madagascan Christmas star orchid in 1862, he predicted that since the nectar was at the bottom of the long flower spur, a pollinator must exist with a tongue as long as the spur - 41 years later, such a moth was discovered.



There are around 220 species in the genus *Angraecum*, with new species being discovered recently in Madagascan forests. The genus name, *Angraecum*, is derived from the Malayan word *anggrek*, which is used to describe several species of epiphytic orchids. The specific epithet *sesquipedale* comes from the Latin *sesquipedalis*, meaning 'one and a half feet', in reference to the long flower spur.

The species was discovered by the aristocrat and keen botanist Louis Marie Aubert du Petit Thouars (1758-1831) in eastern Madagascar, where he had been exiled during the French Revolution. He returned to France in 1802 with a large collection of plants, most of which he donated to the Jardin des Plantes in Paris.

Synonyms:

Aeranthes sesquipedalis (Thouars) Lindl., *Macroleptum sesquipedale* (Thouars) Pfitzer, *Angorchis sesquipedalis* (Thouars) Kuntze, *Mystacidium sesquipedale* (Thouars) Rolfe

Description:

Angraecum sesquipedale is an epiphytic orchid that can grow up to a metre high. It has two ranks of narrow, leathery leaves that are two-lobed at the tip and measure 22-30cm long and 3cm wide. The thick roots are greyish and produced on the lower part of the stem. The pale greenish flower stems emerge from between the upper leaves and have two to six flowers on stems that are shorter than the leaves. The creamy white flowers are large, fleshy and star-like. The sepals and petals are pointed and between 7-9cm long. The lip is concave, 6.5-8cm long, broad at the base, tapering to a long point and with a spur 30-35 cm long.

DARWIN AND THE CHRISTMAS STAR ORCHID

In January 1862, Darwin wrote in a letter to Joseph Hooker, who had sent him some orchids: 'I have just received such a Box full [...] with the astounding *Angraecum sesquipedalia* [sic] with a nectary a foot long. Good Heavens what insect can suck it'. Later that year, Darwin predicted that the long flower spur must have co-evolved with a pollinator moth with an equally long proboscis. However, it was not until after his death, and 41 years after writing his letter to Hooker, that the pollinator was eventually discovered - the Malagasy subspecies of the African hawkmoth - which was given the scientific name *Xanthopan morgani praedicta* in honour of Darwin's prediction. Although Darwin predicted 'a moth' as the pollinator, it was Alfred Russel Wallace who went one further and predicted the pollinator would be a hawkmoth. Some argue that the name *praedicta* actually refers to Wallace's prediction rather than Darwin's.

Angraecum sesquipedale is not the only species in the genus with a unique pollinator. Recently, a group of scientists, including one from Kew, discovered the first known instance of a cricket as a pollinator of a related species - *Angraecum cadetti* from Mauritius and Réunion.