Scientists think 'killer petunias' should join the ranks of carnivorous plants

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Scientists from the Royal Botanic Gardens, Kew and the Natural History Museum believe that carnivorous behaviour in plants is far more widespread than previously thought, with many commonly grown plants - such as petunias - at least part way to being "meat eaters". A review paper, Murderous plants: Victorian Gothic, Darwin and modern insights into vegetable carnivory, is published today (4 December 2009) in the *Botanical Journal of the Linnean Society*.

Carnivorous plants have caught the imagination of humans since ancient times, and they fitted well into the Victorian interest in Gothic horrors. Accounts of man-eating plants published in 19th century works have long since been discredited, but they continue to appear in different media including films (Audrey II in Little Shop of Horrors) and books (Tentacula in the Harry Potter series). Even popular Japanese cartoon Pokémon includes some characters based on carnivorous plants (Bellsprout, Weepinbell and Victreebell).

Carnivorous plants fascinated Charles Darwin, and he and his friend Sir Joseph Hooker (Director of the Royal Botanic Gardens, Kew at that time) had an extensive correspondence concerning them. Darwin's book Insectivorous Plants played a critical role in the idea that plants could eat animals being generally accepted. Before this, many botanists (including Linnaeus) had refused to accept that this could be the case.

Since Darwin's time, several groups have been generally recognised as carnivorous plants (including sundews, Venus flytraps and pitcher

plants). Various other plants have been suggested as possible carnivores by some authors, but wide acceptance of these has failed to materialise. Defining what constitutes carnivory in plants is a challenge, and authors include or exclude groups of plants on the basis of different sets of criteria. Professor Mark Chase and co-authors from the Royal Botanic Gardens, Kew and the Natural History Museum contend that carnivory and non-carnivory should not be treated as a black and white situation, and they view plants as being on a sliding scale between those that show no carnivorous characteristics and those that are real "meat eaters" such as the Venus flytrap.

Plants like petunias and potatoes have sticky hairs that trap insects, and some species of campion have the common name catchfly for the same reason. However, some of the commonly accepted carnivores have not been demonstrated to have the ability to digest the insects they trap or to absorb the breakdown products. In their paper, Chase et al. review each of the groups of potential carnivores.

Professor Mark Chase, Keeper of the Jodrell Laboratory at the Royal Botanic Gardens, Kew says, "Although a man-eating tree is fictional, many commonly grown plants may turn out to be cryptic carnivores, at least by absorbing through their roots the breakdown products of the animals that they ensnare. We may be surrounded by many more murderous plants than we think."

Vaughan Southgate, President of the Linnean Society of London says, "This scholarly, beautifully illustrated, review of carnivorous plants and the different levels of carnivory that exist in the plant world by botanists at the Royal Botanic Gardens, Kew and the Natural History Museum makes for fascinating reading."

Source: Wiley