

***Hosta Virus X*, a *Potexvirus*¹**

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INTRODUCTION: In the summer of 2013, a plant in the genus *Hosta* with unusual symptoms was submitted to the Division of Plant Industry for diagnosis. The symptoms included leaf thickening and blotching and abnormal variegation (Fig. 1). The plant was diagnosed as being infected with a virus called *Hosta virus X*, a *Potexvirus*.



Fig. 1. Symptoms of *Hosta virus X* on submitted sample. Photography credit: Tim Schubert³

Hosta virus X (HVX) was first identified in 1996 by plant pathologists at the University of Minnesota. It was found in *Hosta* cultivars in Minnesota, Indiana, Iowa and Michigan (Currier and Lockhart, 1996). Since its discovery, it has been found all around the world (Wilson 2005) wherever *Hostas* are grown and has become a concern for nurseries, garden centers, home gardeners, and many *Hosta* societies, such as the American Hosta Society.

Hostas are popular ornamentals used primarily as shade-tolerant plants in home gardens and have been promoted as relatively pest free. However, the discovery of the *Potexvirus Hosta virus X* has changed that perception.

SYMPTOMS: There are many species and cultivars of *Hostas*. Symptoms of this disease will vary depending on the cultivar infected; however, stunted growth, leaf distortions and various patterns of leaf discoloration are the most common symptoms. In addition, some varieties do not show symptoms and newly infected plants may not show typical symptoms for months or even years after the initial infection. There are several websites online with pictures of the symptoms of this virus in different cultivars. For example, check out

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<http://www.hostalibrary.org/firstlook/HVX.htm> and <http://www.invasive.org/browse/autthumb.cfm?aut=11521> or do a search using the virus name, *Hosta virus X*.

VIRUS SPREAD: Like all *Potexviruses*, *Hosta virus X* is mechanically transmitted. It is not transmitted by an insect vector. It spreads from plant to plant when the sap of an infected plant comes into contact with a wound on a healthy plant. These wounds can be made with tools used in propagation and upkeep, such as pruning shears, string trimmers and lawn mowers (Kennelly 2007). It can also be moved by human hands when plants are divided or groomed (removing old leaves or flowers, for example).

The primary route of the spread of infected plants throughout the world has been by the vegetative propagation of infected plants by commercial growers (Lewandowski 2008). It is believed that before we were aware of this virus some *Hosta* cultivars that were selected and sold because of their “interesting foliage” were, in fact, infected by *Hosta virus X* (Spece 2010).

DETECTION AND DIAGNOSIS: Plants suspected of being infected should be sent to a Plant Disease Clinic to be tested. Fortunately, there is an antiserum to the virus available for an ELISA test and ImmunoStrips (Agdia) for the virus are also available.

HOSTS: As far as it is known, *Hosta* spp. are the only hosts for this virus and all *Hosta* spp. appear to be susceptible.

CONTROL: There is no cure for infected plants. The best way to avoid the disease is by carefully inspecting plants before purchasing and only purchasing from a nursery whose plants have been tested for the disease. If there are one or two plants that look infected in a large group of *Hostas*, chances are the rest are infected too. The only way to get rid of the virus is to destroy the infected plants. They should be sent to the landfill or burned not composted. New virus-free *Hostas* should not be planted in the same site and pots should be sterilized. Tools and pots can be sterilized using bleach, rubbing alcohol, ammonia or Lysol between each use (Spece 2010). Be sure to rinse the chemicals off before using the tools or pots again. Sanitation is the single most important practice in controlling this disease.

SUMMARY: While it is unclear where the virus originally came from (Horton 2009), it has reached epidemic proportions since its discovery in 1996. Symptoms are variable or sometimes non-existent. The virus is easily transmitted mechanically and once a plant is infected there is no cure. The best prevention is avoidance, simply not growing infected plants which requires vigilance and testing. A good summary of *Hosta virus X* can be found on the website: http://www.inthecountrygardenandgifts.com/articles/Hosta_Virus_X_flier.pdf

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Other Websites with Useful Information:

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