



## First confirmed report of *Gibberella indica* on *Cajanus cajan* in Barbados, Lesser Antilles

J. Lamontagne-Godwin<sup>1\*</sup>, R. Reeder<sup>1</sup>, A.G. Buddie<sup>1</sup> and M. James<sup>2</sup>

<sup>1</sup> CABI Bioscience UK Centre (Egham), Surrey TW20 9TY, United Kingdom; <sup>2</sup> Ministry of Agriculture, Food, Fisheries and Water Resource Management, Graeme Hall, Barbados, West Indies

\*E-mail: j.lamontagne-godwin@cabi.org

**Received:** 13 Jan 2012. **Published:** 15 Sep 2012. **Keywords:** pigeon pea, legume, Caribbean, shrub

Pigeon pea, locally known as gungo pea (*Cajanus cajan*) is a perennial shrub that is commonly cropped as an annual. It is an important grain legume in the semi-arid tropics and the Caribbean where it is grown for both food and fodder, with the crop having a commercial value of several billion US dollars in the Caribbean region (CARICOM Statistics). In February 2009, pigeon peas showing severe disease symptoms were first noticed in plots located at the Central Agronomic Research Station in the Graeme Hall area of Christ Church, Barbados. The lower stems and branches were affected by a chocolate brown to black discolouration that ran the entire length of the stem, but was often restricted to one side. Early symptoms were first observed towards the apex of the stem as small circular spots, which elongated downwards. Typically, leaves on infected stems begin to wilt and show interveinal chlorosis prior to necrosis; the whole plant eventually wilts once the infection has spread through the vascular system and into the lateral roots.

The disease spread and development is weather-dependant, becoming particularly active during the rainy season (generally June till November). It primarily affects mature plants, but has also been found on younger ones and seedlings, depending on the stage at which the pathogen comes into contact with the plant. Symptoms of the disease have been seen in all areas where the pigeon pea is grown and seems to affect the medium to tall variety more than the dwarf variety. From investigations the problem seemed to have been present in Barbados for five to six years and can be locally severe, causing total crop failure. Samples from infected plants were sent to the Global Plant Clinic, UK for confirmation of the causal agent. A fungus was consistently isolated from the discoloured

vascular tissues of stems and maintained on potato carrot agar (PCA). Based on the morphological characteristics, the fungus was identified as *Gibberella indica* (anamorph *Fusarium udum* E.J Butler, 1910) and deposited in the culture collection at CABI, UK (IMI397925).

Confirmation of its identity was obtained using molecular methods. A partial sequence of the Translation Elongation Factor 1-alpha (TEF-1a) coding region and introns was obtained and deposited in GenBank as BankIt1436617 IMI397925 (Accession No. JQ307211). The sequence showed 100% homology with authentic strains of *Fusarium udum* available in the GenBank database.

*Fusarium udum* is a serious pathogen of pigeon pea in sub-Saharan Africa, Nepal, Myanmar and India. In an ICRISAT survey conducted from 1975 to 1980, annual losses due to wilt were reported to be up to US\$36 million. Losses caused by the disease are dependent on the stage of wilt occurrence. If wilt occurs prior to podding, loss is total. However, only partial loss may result if wilt occurs at pod filling stage or later (Natarajan *et al.*, 1984). This is the first report of *Fusarium udum* on pigeon pea in Barbados, Lesser Antilles, but not the first occurrence in the Caribbean where it has previously been reported in Grenada, St. Kitts and Nevis and Trinidad and Tobago according to records held by CABI.

### References

Natarajan M, Kannaiyan J, Willey RW Nene YL, 1985. Studies on the effects of cropping system on *Fusarium* wilt of pigeon pea. *Field Crops Research*, 333-346. [http://dx.doi.org/10.1016/0378-4290(85)90039-5]



Figure 1

**To cite this report:** Lamontagne-Godwin J, Reeder R, Buddie AG, James M, 2012. First confirmed report of *Gibberella indica* on *Cajanus cajan* in Barbados, Lesser Antilles. *New Disease Reports* 26, 10. [http://dx.doi.org/10.5197/j.2044-0588.2012.026.010]

©2012 The Authors

This report was published on-line at [www.ndrs.org.uk](http://www.ndrs.org.uk) where high quality versions of the figures can be found.