Key access and utilization descriptors for yam genetic resources

This list consists of an initial set of characterization and evaluation descriptors for yam utilization. This strategic set of descriptors, together with passport data, will become the basis for the global accession level information portal being developed by Bioversity International with the financial support of the Global Crop Diversity Trust (GCDT). It will facilitate access to and utilization of yam accessions held in genebanks and does not preclude the addition of further descriptors, should data subsequently become available.

Based on the comprehensive 'Descriptors for Yam (*Dioscorea* spp.)' published by IITA and IPGRI (now Bioversity International) in 1997, the list was subsequently compared with a number of sources[1], and with the traits that were awarded funds for further research by The TRUST through the Evaluation Awards Scheme (GCDT, EAS, 2008).

This minimal set defines a first priority set of descriptors to describe, to access and to utilize *Dioscorea* genetic resources. A worldwide distribution of experts were involved in an online survey and the list was afterwards validated by a Core Advisory Group (see 'Contributors') led by Dr Danny Hunter of Bioversity International and Ranjana Bhattacharjee of the International Institute of Tropical Agriculture.

Biotic and abiotic stresses included in the list were chosen because of their wide geographic occurrence and significant economic impact at a global level.

Numbers in parentheses on the right-hand side are the corresponding descriptor numbers listed in the 1997 publication. Descriptors with numbers ending in 'X' are new descriptors that were added during the development of the list below.

PLANT DATA

Spines on stem base (7.1.34)

3 Few
7 Many

1 (a) Basic list of descriptors for Yam (*Dioscorea alata*) from Guarino L. and Jackson G. 1986. Describing and documenting Root Crops in the South Pacific. RAS/83/001. Field Document 12.
(b) Basic list of descriptors for Yam (*Dioscorea esculenta*) from Guarino L. and Jackson G. 1986. Describing and documenting Root Crops in the South Pacific. RAS/83/001. Field Document 12.
(c) The Global Crop Diversity Trust 2008 Award Scheme (EAS) 'Enhancing the Value of Crop Diversity in a World of Climate Change'.
(d) Mahalakshmi V. *et al*. 2007. Development of a West African yam *Dioscorea* spp. core collection. *Gen. Resour. and Crop Evol*., 54:1817–1825.
(e) Lebot V. *et al*. 1998. Genetic relationships between *Dioscorea alata* L. cultivars. *Gen. Resour. and Crop Evol.*, 45: 499–509.
(f) Sayed M. Zain Hasan *et al*. 2008. Morphological variability of greater yam (*Dioscorea alata* L.) in Malaysia. *Plan. Gen. Resour*., Characterization and Utilization 6(1): 52–61.

Tuber shape (7.6.14)

1 Round
2 Oval
3 Oval-oblong
4 Cylindrical
5 Flattened
6 Irregular
99 Other (specify in the descriptor **Notes**)

Tuber length (7.6.17)

1 ≤20 cm
2 21–40 cm
3 ≥41 cm

Flesh colour at central transverse cross-section (7.6.30)

1 White
2 Yellowish white or off-white
3 Yellow
4 Orange
5 Light purple
6 Purple
7 Purple with white
8 White with purple
9 Outer purple/inner yellowish
99 Other (specify in the descriptor **Notes**)

Total weight of harvested tubers [kg] (8.1.2)

Calculated on ten plants per accession at harvest

Overall assessment of cooked tuber (8.3.15)

3 Low
5 Intermediate
7 High

Stay-green ability (8.3.X)

Retention of green colour at maturity

ABIOTIC STRESSES

Reaction to high soil moisture (9.4)

BIOTIC STRESSES

Yam mosaic potyvirus (YMV) (10.1.1.4)

Anthracnose susceptibility (10.1.2)

***Fusarium* spp.** (10.1.3)

Pratylenchus coffeae (10.2.3.2)

Yam beetle damage on tubers (10.2.9)

NOTES

Any additional information may be specified here, particularly that referring to the category 'Other' present in some of the descriptors above.

CONTRIBUTORS

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