Journal on New Biological Reports **3**(2): 87 – 90 (2014) **ISSN 2319 – 1104 (Online)**

Cucumis sativus L. var. *hardwickii* (Royle) Alef. - A new record for the flora of Melghat, Amravati, India

Nilamani Dikshit

National Bureau of Plant Genetic Resources Regional Station, Dr. PDKV Campus, Akola-444104, Maharashtra, India

(Received on: 13 May, 2014; accepted on: 06 June, 2014)

ABSTRACT

Occurrence of *Cucumis sativus* L. var. *hardwickii* (Royle) Alef. is reported for the first time from Melghat Biosphere Reserve located in the southern portion of Amravati district of Maharashtra in the Satpura mountain ranges of Central India. Location of the species along with phenotypic characteristics is reported in the paper.

Key Words: New record, Flora of Melghat, Amravati, Maharashtra, India.

INTRODUCTION

Cucumis sativus L. var. *hardwickii* (Royle) Alef. is a feral, wild progenitor of cultivated cucumber (*Cucumis sativus* L.), (2n=2x=14) and have resistance to cucumber green mottle mosaic virus (Sharma and Hore, 1996), root knot nematodes (Walters *et al.*1997), downy mildew and scab disease (Staub and Palmer 1987). It possess several desirable characters viz. sequential multiple fruiting habit, multiple lateral branching and total fruit weight per plant (Staub *et al*. 1993), dark green colour fruits, early maturing and bearing fruit during rainy season. *Cucumis sativus* L. var. *hardwickii* (Royle) Alef. has been reported in the higher elevations in the Himalayan foot hill of India (Deakin *et al*. 1971) and distributed in different states of India i.e. Himachal Pradesh, Uttar Pradesh, Uttarakhand, Rajasthan, Madhya Pradesh, Chhattisgarh, Odisha and Western ghats of Maharashtra.

Melghat Tiger reserve is located in the southern portion of Amravati district in the Satpura mountain ranges. The region is characterized by high hills, valleys, cliffs and *Tectona grandis* (Teak) is the dominant plant species of the region. Several authors have attempted to botanize the floristic diversity of the region. Naturalized species of Melghat preferably the occurrence of 353 trees, shrubs, climbers and economic herbs were listed by Witt (1916) and 409 species by Patel (1968) from Melghat and bordering plains. Dhore and Joshi (1988) revisited the Melghat Tiger Reserve areas and published the Flora of Melghat in which a total of 648 species comprising dicots (488 species), monocots (160 species) excluding the cultivated 40 species were reported. Bhogaonkar and Devarkar (1999) added 67 new species to this list while Londhe *et al*. (2002) added 102 species in addition to the reports made by the earlier authors. In the present paper, occurrence of *Cucumis sativus* L. var. *hardwickii* (Royle) Alef. has been reported for the first time from Melghat region.

MATERIALS AND METHODS

Under the National Exploration and Collection mission, surveys were conducted in Melghat Biosphere Reserve and its adjoining region during December 2010 and October 2012 by the author for collection of agri-horticultural crops in the region particularly crop-wild relatives of Cucurbits, *Cucumis*, *Luffa, Lagenaria* and millets. During the exploration, the author came across with the species *Cucumis sativus* var. *hardwickii* (Royle) Alef. in different localities of Melghat. Passport data (village, block, district, longitude, latitude and altitude, soil characteristics) of the species were recorded at the site of collection. Each accession was assigned a collector number. The occurrence of the species in Melghat and phenotypic characteristics of the species are reported (Fig 1).

Corresponding author*:* dikshitn@gmail.com

Fig. 1. Botanical characteristics and location of *Cucumis sativus* var. *hardwickii* (Royle) Alef. in Melghat, Amravati, Maharashtra

RESULTS AND DISCUSSION

During the exploration, the plants were observed for the first time from Chikhaldara areas of Melghat on 5.12.2010. The place is situated at (21° 24' 092 N and 77° 19' 042 E) and an altitude of 3761 feet above msl. The second accession (D2012-74) was reported from Amjhari areas of Melghat Biosphere Reserve and it is located at (21° 25' 411 N, 077° 20' 642 E) and an altitude 2005 ft. above msl on 30.10.2012. The third accession (D 2012-75) was collected from Bhawai near a stream bank located at (21° 16' 330 N, 77° 23' 155 E), altitude 2100 ft above msl on 31.10.2012. The plants are trailing, monoecious, vines robust, leaves stiff bristly hairs, cordate, three-five angled, male flower yellow borne in axillary clusters of 5-8, corolla 1.5-2.0 cm across, stamens three, pistillode, globose, female flower yellow, solitary, axillary 1 cm across, fruits green , round, large, pendulous with spinous tubercles , flesh white, pulp bitter, seeds flat and smooth. Data on average of five fruits of *C. hardwickii* exhibited a range of variation in fruit length (5.0-5.5 cm), fruit breadth (4.27-4.58 cm) and fruit weight (44.22-57.98 g). The average of fruit length, fruit breadth and fruit weight are 5.38 cm, 4.72 cm and 52.60 gram respectively. The results corroborate the earlier findings of Horst and Lower (1978), Schuman *et al*. (1985), Staub (1985) and Yang *et al.* (1992). Seeds were extracted from the matured fruits, dried and conserved in the medium term storage module of the Regional Station. Literature survey and floristic analysis on Melghat Biosphere Reserve confirmed the occurrence of *Cucumis sativus* var. *hardwickii* as a new record for the Flora of Melghat. The collected germplasm would help in conserving the genepool, transferring the genes for sequential fruiting, multiple lateral branching and the resistance genes for pests and diseases from *Cucumis sativus* var. *hardwickii* to commercial cucumber.

ACKNOWLEDGEMENTS

The author wish to thank Head, Germplasm Exploration Division, Head, Germplasm Evaluation and Director of National Bureau of Plant Genetic Resources for providing the facilities for carrying out the exploration activities.

REFERENCES

Bhogaonkar PY, Devarkar VD. 1999. Additions to the flora of Melghat. Some rare and uncommon plants. Technical Bulletin No. VII. The Directorate, Project Tiger, Melghat, Paratwada, Amravati, Maharashtra, India.

Deakin JR, Bohn GW, Whitaker IW. 1971. Interspecific hybridization in *Cucumis*. Econ Bot 25: 195-211.

Dhore MA, Joshi PA. 1988. Flora of Melghat Tiger Reserve. The Directorate, Project Tiger, Melghat, Paratwada, Amravati, Maharashtra.

Horst EK, Lower RL. 1978. *Cucumis hardwickii*: a source of germplasm for the cucumber breeder. Cucurbit Genet Cooperative Rep 1: 5.

Kuriachan P, S Suhana Becky.1992. Occurrence and chromosome number of *Cucumis sativu*s var. *hardwickii* (Royle) Alef in South India and its bearing on the origin of the cultivated cucumber. Euphytica 61: 131-133.

Londhe AN, Watve AN, Ansari MY. 2002. Additions to the flora of Melghat Tiger Reserve. J Econ Taxon Bot26 (2):385-395.

Patel RI. 1968. Forest flora of Melghat, Prabhat Press, Meerut.

Schuman DA, Staub JE, Struckmeyer BE .1985. Morphological and anatomical comparisons between two *Cucumis sativus* botanical varieties *hardwickii* and *sativus*. Cucurbit Genet Cooperative Rep 8:15-18.

Sharma BD, Hore DK. 1996. Indian Cucumber germplasm and challenges ahead. Genet Resour Crop Evol 43:7-12.

Singh NP, Karthikeyan S. 2000. Flora of Maharashtra State- Dicoyledones. Vol. I Botanical Survey of India, Calcutta

Singh NP, Lakshminarasimhan P, Karthikeyan S Prasanna PV. 2001. Flora of Maharashtra State- Dicoyledones. Vol. II. Botanical Survey of India, Calcutta.

Smith OS, Lower RL, Mill RH. 1978. Estimates of heritabilities and variance components in prickling cucumber. J Am Soc Hort Sc 103: 222-225.

Staub JE.1985. Preliminary yield evaluation of inbred lines derived from *Cucumis sativus* var. *hardwickii* (Royle) Alef. Cucurbit Genet Cooperative Rep 8:18-21.

Staub JE, Palmer MJ. 1987. Resistance to downy mildew [*Pseudoperonospora cubensis* (Berk. &Curt.) Rostow.] and scab (spot Rot) [*Cladosporium cucumerinum* Eliis & Arthur] in Cucumis species . Cucurbit Genet Coop Rep 10:21-23.

Staub JE, Peterson CE, Crubaugh LK, Palmer MJ. 1993. Cucumber population WI 6383 and derived inbreds WI 5098 and WI 5591. Hort Sc 27:1340-1341.

Walters SA, Wehner TC, Barker KR. 1997. A simple recessive gene for resistance to the root-knot nematode (*Meloidogyne javanica*) in *Cucumis sativus* var. *hardwickii*. J Heredity 88:66-69.

Witt DO.1916. Descriptive list of trees, shrubs, climbers and economic herbs of the Northern and Berar Forest Circles. Central Provinces, Allahabad.

Yang SL. 1992. Cucumber germplasm resources in southeast China. Cucurbit Genet Cooperative Rep15:7-8.