

## Establishing a core set from global collection of finger millet [*Eleusine coracana* (L.) Gaertn]

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### ABSTRACT

In the present investigation core set of finger millet germplasm was formed using data on geographical distribution and agro-morphological traits by using software called Power Core (v.1.0) which yielded core set consisting of 221 accessions. In the core set formed, majority of the accessions were from Asian continent. Percentage of significance difference between the entire collection and core set for means and variances suggested that the core collection represents the entire collection. Coincident rate for distribution of ranges, variable rate for coefficient of variation values, Newman-Keuls' test for means, Levene's test for variances, Chi-square test for frequency distribution analysis and Shannon-Weaver diversity index for different traits indicated that the variation available in the entire collection has been preserved in the core set. This indicates that the method followed in the formation of core set by using the software 'Power Core' (v.1.0) was appropriate and core set represents the entire collection.

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**Key words :** Core set, Diversity index, Finger millet, Power core

### INTRODUCTION

Finger millet [*Eleusine coracana* (L.) Gaertn.] is an important food crop in Africa and South Asia. It is a hardy crop that can be grown in diverse environments from almost at sea level in South India to high lands of Himalayas. It has dual importance as a source of food grain as well as straw. Finger millet provides staple food for a large section of farming community in many parts of India. The native home of finger millet is presumed to be highlands of Central Africa and India is often considered as secondary centre of diversity.

Finger millet is very nutritious with good quality protein, plentiful minerals, dietary fibres, phytochemicals and vitamins. The grain has very good malting qualities providing opportunities in expanding its utility range in food processing and value addition. It is used in the production of beer, porridge, soup, bread, cake and pudding. Despite all these merits, this crop has been neglected from the main stream of crop improvement programme. One of the means to boost its production and productivity is to enhance utilization of finger millet germplasm to breed superior varieties.

Recognizing the importance of collection, conservation and easy access of finger millet germplasm to the breeders, the All India Co-ordinated Small Millets

Improvement Project (AICSMIP) established a germplasm unit at Bangalore in 1979 which has finger millet collection exceeding 6500 accessions. With the rapid increase in the number of accessions contained in crop germplasm collections, redundant resources have become an obstacle to the effective maintenance and utilization of these collections. Realizing this difficulty, the concept of forming core collection forms a very effective alternative from the point of enhancing the utility of conserved germplasm. The use of core collections to improve access to large, unwieldy collections, originally envisioned by Sir Otto Frankel (1984). A core collection consists of a limited number of accessions derived from a whole germplasm collection, chosen to represent the genetic spectrum in the whole collection and includes as much as possible of its genetic diversity.

Considering the importance of finger millet as food and feed crop especially to harsh agricultural regions in the country, an effort was made to develop core set from the entire collection. The core set was developed from the entire collection of 4511 accessions at Bangalore using all available information on geographical origin and evaluated data on agro-morphological characters. The objective of this study was to develop a core set of finger millet germplasm accessions by utilizing PowerCore (v.1.0) software and to compare the core set developed

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