



Biochemical basis of productivity in little millet (*Panicum miliare* L.)

S.G. GOLLAGI*, M.B. CHETTI AND V.H. ASHVATHAMA

Department of Crop Physiology, University of Agricultural Sciences, DHARWAD (KARNATAKA) INDIA

Abstract : Crop yield is mainly dependent on the interplay of various physiological and biochemical functions of the plants in addition to the impact of environment. A cause and effect relationship is necessary to understand interplay of several processes and functions affecting crop yield. The genotypes TNAU-63, OLM-20 and TNAU-89 recorded higher total chlorophyll and nitrate reductase activity. Correlation study indicated that a significant and a positive association of these parameters with grain yield. Chlorophyll a, b, total chlorophyll and nitrate reductase activity had positive correlation with yield.

Key Words : Biochemical parameters, Little millet genotypes, Yield

View Point Article : Gollagi, S.G., Chetti, M.B. and Ashvathama, V.H. (2013). Biochemical basis of productivity in little millet (*Panicum miliare* L.). *Internat. J. agric. Sci.*, 9(1): 326-328.

Article History : Received : 10.08.2012; Revised : 01.12.2012; Accepted : 26.12.2012

INTRODUCTION

Little millet (*Panicum miliare* L.), commonly known as Same is an important minor millet belonging to the family Poaceae. It is rich in nutrients. It is suited to conditions of low and moderate rainfall areas ranging from 500 to 700 mm. It is widely cultivated as a cereal across India, Nepal and Western Burma. It is particularly important in the Eastern Ghats of India, where it forms important part of tribal agriculture. In India, the cultivation of little millet is mainly confined to Tamil Nadu, Karnataka, Andhra Pradesh, Maharashtra, Orissa, Bihar, Madhya Pradesh and Uttar Pradesh. It is known that biochemical parameters may affect yield in many ways. It is better to identify those which have close positive relation with grain yield. With this background, the present study was taken up.

MATERIALS AND METHODS

A field experiment on little millet was conducted with 13 genotypes at university of Agricultural Sciences, Dharwad. The genotypes were classified into high yielding (TNAU-63,

OLM -20, TNAU-89, CO-2), medium yielding (OLM-203, TNAU-98, DLM-423, OLM -23) and low yielding (DLM -322, Varisukhdar, OLM-37PRC-3). Along with local check above little millet genotypes were sown in Randomized Block Design with three replications.

Total chlorophyll, Chl. 'a' and 'b' contents in leaf were determined by following the acetone extraction method of Arnon (1949). The nitrate reductase activity (NRA) *in vivo* was assayed in leaves by the method of Saradhambal *et al.* (1978). The mean values for the characters subjected to statistical analysis were suggested by Panse and Sukhatme (1967). Correlation analysis was carried out to study nature and degree of relationship between biophysical parameters with yield by following the method of Panse and Sukhatme (1967).

RESULTS AND DISCUSSION

Crop yield is mainly dependent on the interplay of various physiological and biochemical functions of the plants in addition to the impact of the environment. The cause and effect relationship is necessary to understand the interplay of

* Author for correspondence and Present Address : Department of Crop Physiology, University of Horticultural Sciences, BAGALKOT (KARNATAKA) INDIA