



# Study of grain quality of some traditionally cultivated Basmati and Non-Basmati aromatic rices under organic field conditions

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**Abstract :** Cultivation and selection by farmers for centuries under varied growing conditions has resulted in a myriad of rice varieties. Rice varieties differ from each other in growth duration, photoperiod sensitivity, grain size, shape and colour, and endosperm properties. India possesses an immense wealth of Basmati and non Basmati aromatic rice varieties and land races exhibiting a wide variability in their grain quality and cooking characteristics. Among all scented rices aroma is considered as most important quality parameter of high quality rice. The major aromatic compound responsible for aroma is considered is 2-acetyl-1- pyrroline, which is degraded by excessive nitrogenous fertilizers. To avoid degradation of 2-acetyl-1- pyrroline and ultimately aroma organic field conditions are preferred. In present study 35 varieties/lines of Basmati and Non-Basmati aromatic rices were evaluated for their physical and quality characteristics. Among all quality characteristics aroma is considered as most important quality parameter of high quality rice. In present study aroma ranged from very low to strong. Only one variety *i.e* Kalanamak 3120 show very low aroma. Strong aroma was reported for 11 varieties and remaining 19 varieties showed moderate aroma. The gelatinizing temperature ranged from low to high intermediate category. This was indirectly decided by alkali digestion score which ranged from 7.0 (Kalanamak 3216 and Kalanamak 3319) to 1.75 (Basmati 107). Cooked kernel length was recorded 13.65 mm (Hansraj 3072-2) to 8.40 mm (Kalanamak 3319), while cooked kernel breadth ranged between 2.9 mm ( Bindli 3255) to 2.0 mm (Basmati 136, Kalanamak 3121). Elongation ratio was recorded from 2.30 (Kalanamak 3215) to 1.75 (Kalanamak 3319). Most of the parameters of these varieties/lines were compared to premium Dehradun basmati 3020. Based on this study it was revealed that besides Basmati rice other non Basmati aromatic rice varieties should also promoted by scientists and adopted by more and more farmers and traders so the consumers can get better aromatic rice at lower cost and simultaneously we can maintain our traditional non basmati aromatic rice germ plasm.

**Key Words :** Grain quality, Non-Basmati rice, Amylose content, Gelatinizing temperature, Elongation ratio

**View Point Article :** Singh, Yogendra (2013). Study of grain quality of some traditionally cultivated Basmati and Non-Basmati aromatic rices under organic field conditions. *Internat. J. agric. Sci.*, 9(1): 280-285.

**Article History :** Received : 01.09.2012; Revised : 03.11.2012; Accepted : 14.12.2012

## INTRODUCTION

Rice (*Oryza sativa* L.), a semi-aquatic annual grass native to tropical Asia, is the world's single most important food crop and a primary food source for more than a third of world's population. It is an integral part, inter-twined with the socio-religious customs, food habits as well as the economy of the country. More than 90 per cent of the world's rice is grown and consumed in Asia, where 60 per cent of the calories are consumed by 3 billion Asians (Khush, 1997). India is one of

the world's largest producers of white rice, accounting for 20 per cent of all world rice production. India stands first in area, second in production, followed and preceded by China on these two aspects. The other major rice growing countries are Indonesia, Vietnam, Bangladesh, Thailand, Myanmar and Philippines among Asian countries. Now these days rice is excessively produced in whole of the world. Rice grain quality is a major factor from consumer as well as marketing point of view. Aromatic rice, which has stronger aroma and kernel elongation than ordinary rice, has more in demand in different