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RESEARCH ARTICLE

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Grain quality analysis in field pea [*Pisum sativum* (L.) Var. arvenses]

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ABSTRACT

Forty nine field pea genotypes including 17 tall, 27 dwarf and 5 extra types were tested for ten physical characters which determine grain quality. Sufficient variation was found for the characters 100 seed weight before and after soaking, seed volume before and after soaking, hydration capacity, swelling capacity, hydration index and swelling index. Coefficient variation for seed density after soaked and swelling index was low. The extra early type genotypes DDR -64 and DDR -6 had better grain quality. The dwarf type genotypes KMPR -144, HFD-9512, KPMR-602 and KPMR-632 and tall type genotypes IPF-99-31 also had better grain quality. Use of these genotypes in breeding as source for different traits has been suggested.

KEY WORDS : Field pea, Grain quality, Variability

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INTRODUCTION

Pea [*Pisum sativum* (L.) var. arvenses] is a leguminous plant of the sub family papilionoidaea and belongs to the general class of dicotyledon. Pea is the popular pulse crop and is the second important food legume of the world. It is essentially a cold weather crop and can withstand light frost. Dry peas are used as split pea (*dal*) and *besan* for various preparations. Green pods are used as a vegetable. Both pods and grains are rich in protein content ranging from 21 to 33 % (NBPGR, 1887). Water absorption relates directly to the cooking quality. However, information on the grain quality characters in field pea is meager. The present study was conducted to determine some cooking quality and physical characters on 49 genotypes.

MATERIALS AND METHODS

Grain samples of forty nine field pea genotypes namely Rachna (ch), Ambika (ch), IPF 98-18, KPMR 615, IPF 99-25, IPF 99-26, DMR 44, IPF 99-31, VL 40, VL 41, DMR 46, DMR 47, KPMR 660, KPMR 662, KPMR 663, IPF-1-17, IPF-1-22, HFP 4, KPMR 144, KPMR 400, DDR 49, IPF 98-1, IM 9214-10, NBP 1, IPFD 99-13, HFD 9512, NBP 2, KPMR 606, KPMR 603, LFD 323, KPMR 602, Pant P 13,Pant P 14, Pant P 20, DDR 61, DDR 62, KPMR 632, KPMR 640, KPMR 641, IPFD-1-9, IPFD-1-10, HFD 98-11, HFD 9830, HFD 9833, DDR 23, DDR 55, DDR 54, DDR 63 and DDR 64 were grown in the form of variability, character association, path analysis and genetic divergence trial at Main Pulses Research Station, SDAU, Sardarkrushinagar and seed harvested was used for the present study. For chemical analysis, one hundred randomly selected seeds were weighed in grams to get 100 seed weight. The same seeds were taken to find out 100 seeds volume and seed density. The physio-chemical tests like hydration capacity and swelling indes were determined by the methods used Bhattacharya (1972) and Williams (1983). All the tests were carried out in triplicate and the mean values were used for statistical analysis.

The derived physical characters were taken as given below.

– 100 seed weight (dry) : Weight of 100 seeds taken in gram after oven drying.

– 100 seed weight after soaking : Weight of 100 seeds after soaking in water for 24 hrs.

– Average volume of 100 seeds (dry): Volume of 100 dry seeds taken in ml.

– Average volume of 100 seeds (after soaking): Volume of 100 soaked seeds taken in ml.

– Hydration capacity (per seed): 100 seed weight

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