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Yield and Oil Content of Various Canola (*Brassica napus* L.) Genotypes under Rawalakot, Azad Jamu and Kashmir Conditions

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Abstract: The field experiment was conducted at Agro climatic conditions of Rawalakot, Azad Kashmir for evaluation of various canola genotypes for seed and oil potentials. The ten canola entries: Canola-1, Canola-2, Shiralle, Oscar, Dunkled, Rainbow, PR-1002, PR-1005, PR-1003 and PR-1007 were sown in rain fed conditions. The result showed the superiority of Rainbow variety for recording the higher seed and oil yields and was recommended for achieving satisfactory yield.

Key words: Canola, genotypes, seed and oil yields

INTRODUCTION

Since "Generally Regarded As Safe" (GRAS) status was granted to canola oil with less than 2% erucic acid content in 1985, there has been a rapid acceptance of canola products in US. Canola oil continues to increase in popularity among US consumers because it fills a health niche, having the lowest level of saturated fat of all edible oils and the second highest level of monounsaturated fat^[1]. Sims *et al.*^[2] reported that canola yields increased greatly with increased availability of water under normal conditions. The new canola varieties have higher levels of oil and protein than the older varieties. The triazine tolerant canola varieties have less oil than the susceptible varieties. Induced drought at different growth stages of canola has shown that stress after flowering severely reduced yield and oil content. Comparing well watered plants with droughty plants, Mailer and Cornish^[3] found oil content fell from 36.9 to 31.4%. However, unless irrigation is an option, the grower has little control over the onset of drought except to sow early in an attempt to avoid moisture stress. High temperatures during the post-anthesis seed development in canola reduce oil content. The relationship between percent oil and the daily mean temperature averaged over this period vary from 1.2% oil loss for each 1^oC rise to 1.5% oil per 1^oC^[4]. The oil from improved varieties of repassed has important potential in the human diet as the cooking oil, whole the oil meal can be an important source of protein for animals^[5]. The traditional approach for the cropping has been to use conventional cultivars and to

modify the soil and water to meet the needs of the crop, or to make genetic selections from established cultivars through research, thus this research would be an approach to explore the canola genotypes for their yield and oil production.

MATERIALS AND METHODS

The experiment was conducted to assess canola varietal screening for oil and seed yield potential under agro climatic conditions of Rawalakot, Azad Kashmir, during winter 2002-2003. The experiment was laid-down in RCBD, having three replications. The genotypes used were: Canola-1, Canola-2, Shiralle, Oscar, Dunkled, Rainbow, PR-1002, PR-1005, PR-1003 and PR-1007. The cultural practices were adopted to maintain the experimental area and all the collected data were analyzed by the methods of Gomez and Gomez^[6].

RESULTS AND DISCUSSION

Seed yield: The results of the experiment revealed that Rainbow variety recorded significantly higher yield (576 kg ha⁻¹), followed by Canola-2. The other varieties were in the range of 408 to 488 kg ha⁻¹ for seed yield (Table 1).

The seed yield of the current research was very low as compared to other countries like Bacon and Kelly^[7] at Arkansas, USA obtained highest mean yield of 2306 kg ha⁻¹ from AR-1004 Canola variety. Shukla and Kumar^[8] at UP, India, reported 1.29 t ha⁻¹ from Kirshna variety.

Table 1: Seed and oil yields of various canola genotypes

Genotypes	Seed Yield (Kg ha ⁻¹)	Oil Content (%)
Canola – 1	428bc	38ab
Canola – 2	533ab	38ab
Shiralle	488b	38ab
Oscar	510ab	38ab
Dunkled	450b	38ab
Rainbow	576a	41a
PR-1002	408c	37b
PR-1005	435bc	39ab
PR-1003	460b	39ab
PR-1007	435bc	39ab
CV%	4.74	2.16
SE	22.25	0.83
LSD 5%	40.11	1.47
LSD 1%	60.57	2.39

Values followed by similar letter are not significantly different at 5% probability level.

Oil content: The data of oil content of various canola varieties revealed that oil content values ranged between 37 to 41%, where Rainbow recorded highest oil content (41%) followed by PR-1005, 1003, 1007 all recorded equally oil content of 39%. The results agree with the findings of Shukla and Kumar^[8] and Novoseloy *et al.*^[9] all reported 38 to 40% and 44% oil content in various varieties of canola.

Therefore it was concluded that Rainbow canola variety performed better for seed and oil production than all of rest genotypes in rain-fed conditions of Rawalakot and is recommended for achieving satisfactory seed and oil yields.

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