

# Estimation of Genetic Variability, Heritability and Genetic Advance for Essential Oil Yield and Related Traits in Genus *Ocimum*

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**Abstract**

Assessing variability is fundamental to identify the most important traits in *Ocimum* improvement program. The objective of the present study was to estimate variability, heritability and genetic advance based on twelve morphological characters of *Ocimum*. The experiment was conducted in 2015/16 main cropping season at one location by using randomized complete block design with three replications. The results revealed highly significant differences ( $P < 0.01$ ) among genotypes for all characters considered. The phenotypic coefficient of variation (PCV) for all character was higher than genotypic coefficient of variation (GCV). The estimation of broad sense heritability (BS) was observed to be lower than those of broad sense heritability (BS) for all characters. Genetics advance was recorded as maximum for eugenol content (96.65). Highest heritability in broad sense (BS) recorded for days to maturity (99.46). On the basis of study accessions G-4, G-7, G-9, G-11, G-18 and G-25 were identified high oil of better quality. These accessions may be exploited for commercial cultivation.

**Keywords:** GCV; Genetic advance; Heritability; *Ocimum*; PCV; Variability

## Introduction

*Ocimum* (family-*Lamiaceae*) is a genus of about 200 species of annual and perennial aromatic herbs and shrubs. Most species are native to the tropical and warm temperate regions [1]. The dry herb (leaves), *Ocimum* leaf tea, essential oil and its chemical derivatives (eugenol, methyl-eugenol, linalool etc) are exported to European

S.No	Accessions/Genotypes/cultivar	Botanical name	Origin
1	CIM-Ayu	<i>Urtica dioica</i> L.	CSIR-CIMAP, Lucknow U.P. (India)
2	Vikarsudha	<i>Urtica dioica</i> L.	CSIR-CIMAP, Lucknow U.P. (India)
3	CIM-Angana	<i>Urtica dioica</i> L.	

36	Lemon basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Phagwara, Punjab (India)
37	Indian basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Barabanki U.P., (India)
38	Clove basil	$U\&\grave{a} \{ \sim \{ \acute{h}\cdot\acute{a}\cdot\acute{e}\cdot\acute{e}\cdot\acute{e}\cdot\acute{e} \} \sim \{ L$	Shillong, Meghalaya (India)
39	Indian basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Razaganj, U.P. (India)
40	Indian basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Rishikesh, Uttaranchal (India)
41	French basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Bangalore, Karnataka (India)
42	French basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Mangalore, Karnataka (India)
43	French basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Chandigarh
44	Sweet basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	CSIR-CIMAP, Lucknow U.P.
45	Sweet basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Singapore
46	Sweet basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Singapore
47	Sweet basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	Singapore
48	Sweet basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	CSIR-CIMAP, Lucknow U.P. (India)
49	Sweet basil	$U\&\grave{a} \{ \sim \{ \acute{h}\grave{a}\grave{e}\cdot\grave{a}\&\grave{e} \} \sim \{$	
44	44 Sweet basil	$U \quad \grave{D} \quad \grave{D}$	$\grave{D}\grave{E} \wedge \acute{a}\acute{c}\acute{a}\psi\grave{a}\grave{a} \{ \sim \{ \acute{A}$



## Results and Discussion

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