

## Gene Profiling for Invertase Activity: Assessment of Potato Varieties for Resistance towards Cold Induced Sweetening (Ali A, *et al*)

### Growth stage

Traits	M.S	G.M± S.E	GV	GCV%	PV	PCV %	EV	ECV%	h <sup>2</sup> bs%	GA%
Fructose	0.20677*	1.0451±0.1302	0.0434	20.3985	0.1198	33.8566	0.07631	27.0216	36.300	21.0985
Glucose	1.24133**	1.4978±0.2999	0.2788	43.1498	0.6836	67.5564	0.4047	51.9804	40.796	39.522
Sucrose	45.938**	4.38±0.8482	14.2334	180.2684	17.4708	199.7194	3.2373	85.9715	81.470	136.446

### 4°C temperature

Traits	M.S	G.M±S.E	GV	GCV %	PV	PCV %	EV	ECV %	h <sup>2</sup> bs%	GA%
Fructose	13.6276**	4.7622±0.7589	3.6785	87.8891	6.2704	114.7482	2.5919	73.7743	58.665	54.137
Glucose	5.228**	4.8911±0.7219	0.9609	44.3251	3.3061	82.2154	2.34512	69.2435	29.066	18.963
Sucrose	0.29922*	2.1267±0.2249	0.0239	10.6009	0.2514	34.3832	0.22752	32.7082	9.506	3.933

### 10°C Temperature

Traits	M.S	G.M±S.E	Gv	Gcv	Pv	Pcv%	Ev	Ecv%	H <sup>2</sup> bs%	Ga%
Fructose	0.3227*	2.4509±0.1090	0.0897	19.1364	0.1432	24.1712	0.05344	14.7663	62.679	16.984
Glucose	0.20411*	2.9022±0.1266	0.0439	12.3120	0.1161	20.0030	0.07213	15.7650	37.885	7.806
Sucrose	0.27167**	2.8889±0.1392	0.0614	14.5881	0.1487	22.6884	0.08723	17.3767	41.342	9.685

### 20°C temperature

Traits	M.S	G.M±S.E	GV	GCV%	PV	PCV%	EV	ECV%	h <sup>2</sup> bs%	GA%
Fructose	0.47479**	0.7313±0.0825	0.1481	44.9942	0.1787	49.4313	0.03064	20.4689	82.852	84.050
Glucose	0.70472**	0.8516±0.0924	0.2221	51.0696	0.2605	55.3084	0.0384	21.2348	85.259	89.679
Sucrose	0.05389*	1.1667±0.0586	0.0128	10.4797	0.0283	15.5644	0.01545	11.5076	45.335	11.464

\* = Significant at 1% probability level, \*\* = Significant at 5% probability level, Mean Sum of Squares (M.S), Grand mean (G.M), Genotypic variance (GV), Genotypic coefficient of variance (GCV %), Phenotypic variance (PV), Phenotypic coefficient of variance (PCV %), Environmental Variance (EV), Environmental coefficient of variance (ECV %), Broad sense heritability (h<sup>2</sup>bs %), Genetic advance(GA).

**Table 1:** Genetic components for fructose, glucose and sucrose in potato at different temperatures



Growth stage

Fructose	(mg)	Glucose	(mg)	Sucrose	(mg)
Genotypes	Means	Genotypes	Means	Genotypes	Means
Multa	1.2222 A	HERMES(A)	1.9667 A	Multa	6.8889A
OSCAR(B)	1.1889 A	393574-61(D)	1.8111 AB	OSCAR(B)	6.6667A
393574-61(D)	0.9989 AB	Multa	1.3333BC	HERMES(A)	3.5556B
HERMES(A)	0.9078 B	OSCAR(B)	1.2778BC	393574-61(D)	2.8000B
LADY ROSETTA(E)	<b>0.9078 B</b>	LADY ROSETTA(E)	<b>1.1000 C</b>	LADY ROSETTA(E)	1.9889B

4°C

Fructose	(mg)	Glucose	(mg)	Sucrose	(mg)
Genotypes	Means	Genotypes	Means	Genotypes	Means
OSCAR(B)	5.4444AB	OSCAR(B)	5.8889A	HERMES(A)	2.2667 A
393574-61(D)	4.3667BC	393574-61(D)	5.2222AB	LAAL-E-Faisal	2.1444 A
LADY ROSETTA(E)	3.8889 C	LADY ROSETTA(E)	5.0111AB	LADY ROSETTA(E)	1.9889 A
Multa	3.5556 C	Multa	4.4444AB	Kuroda(D)	1.9000 A
HERMES(A)	<b>5.4444AB</b>	HERMES(A)	<b>3.8889B</b>	OSCAR(B)	2.2667 A

10°C

Fructose	(mg)	Glucose	(mg)	Sucrose	(mg)
Genotypes	Means	Genotypes	Means	Genotypes	Means
OSCAR(B)	2.6556A	Kuroda(D)	3.1111A	Multa	3.1667A
LADY ROSETTA(E)	2.5667A	OSCAR(B)	2.9889AB	HERMES(A)	2.8889AB
HERMES(A)	2.5222AB	Multa	2.8778AB	OSCAR(B)	2.8889AB
Kuroda(D)	2.3111BC	LADY ROSETTA(E)	2.8000B	LADY ROSETTA(E)	2.8000B
Multa	<b>2.1989C</b>	HERMES(A)	<b>2.7333B</b>	Kuroda(D)	2.7000B

20°C

Fructose	(mg)	Glucose	(mg)	Sucrose	(mg)
Genotypes	Means	Genotypes	Means	Genotypes	Means
OSCAR(B)	0.9789 A	OSCAR(B)	1.1800A	OSCAR(B)	1.2778 A
HERMES(A)	0.9389 A	HERMES(A)	1.1000A	HERMES(A)	1.1889AB
LADY ROSETTA(E)	0.6944 B	LADY ROSETTA(E)	0.7889 B	LADY ROSETTA(E)	1.1778AB
Multa	0.6167 B	Multa	0.6556BC	Kuroda(D)	1.1111 B
Kuroda(D)	<b>0.4278 C</b>	Kuroda(D)	<b>0.5333C</b>	Multa	1.0778 B

Table 2: Mean significant differences for fructose, glucose and sucrose in potato at different temperatures