

Table 4 Essential oil content (ppm) and its stability of 35 Damask rose landraces (13 Origin sites) in 7 locations and 2 years (2007-8)

Landrace	Origin site	2007							2008							Mean of		Stability parameters								
		San and aj	Arak	Kashan	Dezful	Stahban	Keznan	Mashhad	San and aj	Arak	Kashan	Dezful	Stahban	Keznan	Mashhad	2007	2008	Landrace	Origin site	Sd2	b	2007	2008	Location		
IS1	OS1	80	2	69	*	280	180	300	100	4	620	1	180	160	270	2	1	225	259	0.011	0.8	0.67	0.86	9509	13477	5346
IS2	OS1	320	2	80	25	20	160	300	150	4	770	1	400	180	220	2	2	271		0.011	0.9	0.89	0.95	25587	3204	10601
IS3	OS1	140	5	73	12	170	150	500	260	3	700	2	520	160	230	2	2	270		0.010	1.0	0.92	0.92	5170	5277	4953
IS4	OS1	80	2	63	*	230	140	440	250	3	670	2	240	160	230	2	2	261		0.023	0.9	0.57	0.79	1191	16534	3308
IS5	OS1	120	5	52	20	360	180	590	70	6	400	1	250	170	220	2	1	236		0.004	0.8	0.41	0.6*	11588	12353	6193
IS6	OS1	40	5	47	16	20	220	310	180	5	430	0	310	230	350	1	2	201		0.007	0.6	0.44	0.53	12403	17183	10774
IS7	OS1	60	2	80	10	20	210	270	60	3	830	4	280	240	170	2	2	224		0.017	1.0	0.99	1.06	18254	14629	14741
IS8	OS1	160	1	58	32	10	160	600	240	4	650	1	200	240	200	2	2	251		0.009	0.9	0.62	0.72	9765	18050	11673
IS9	OS1	60	4	78	12	220	200	790	120	3	700	2	123	90	180	3	3	341		0.029	1.3	1.41	1.11	15311	82749	21541
IS10	OS1	80	5	65	*	230	170	270	70	3	570	1	150	110	180	2	3	314		0.065	0.7	1.49	0.89	10401	16054	50246
EA1	OS2	80	2	70	80	270	70	180	50	7	630	1	113	90	240	2	3	259	278	0.043	0.8	1.36	0.98	23478	69817	32398
			0	0						0		0	0			0	1			**	2*	**	ns			
WA	OS2	80	2	95	40	170	100	110	50	2	830	1	177	110	210	2	4	356		0.078	1.0	2.00	1.33	44183	24412	77009
AR1	OS2	80	3	67	37	80	170	150	90	2	500	3	250	120	180	2	2	220		0.009	0.7	0.44	0.74	23286	21395	15614
IL1	OS3	60	2	82	54	40	130	210	110	*	730	3	180	110	220	2	2	271	252	0.020	1.0	0.68	1.02	34234	26788	25471
			0	0	0							5				6	8			**	6ns	**	ns			
KS1	OS3	60	2	72	33	270	160	300	70	4	600	2	170	100	180	2	2	233		0.003	0.9	0.57	0.88	9889	16345	5151
TH1	OS4	160	4	58	44	80	130	580	160	8	750	*	250	170	380	2	2	292	366	0.014	0.9	0.79	0.85	8918	15280	15858
			0	0	0					0						8	9			**	7ns	ns	ns			
AK1	OS4	80	4	93	33	870	740	250	160	2	870	1	930	620	200	4	4	440		0.012	0.8	1.26	2.77	11793	45069	74739
CM1	OS5	100	5	77	35	80	200	550	110	8	700	1	560	120	200	3	2	277	279	0.002	1.1	1.01	0.98	2539	3681	521
			0	0	0					0		0				0	5			ns	7ns	ns	ns			

LO1	OS5	20	3	10	*	70	170	*	40	3	950	*	320	230	180	2	2	280		0.020	1.1	1.20	1.31	24152	21723	29048
KO2	OS6	120	$\hat{2}$	$\hat{60}$	19	70	200	790	90	$\hat{2}$	530	2	60	210	170	$\hat{2}$	$\hat{1}$	221	221	$\hat{0.015}$	$\hat{1.1}$	0.50	$\hat{0.73}$	15882	23107	14840
			0	0	0					0		0				8	5			**	5ns	**	**			
KZ1	OS7	100	3	63	35	80	130	380	110	4	670	1	310	100	210	4	2	238	303	0.002	0.9	0.75	0.86	5043	5413	4469
			0	0	0					0		9				2	2			ns	1ns	ns	ns			
												0				3	3									
BA1	OS7	100	*	92	36	100	200	132	50	4	680	2	140	180	180	5	3	427		0.031	1.9	1.61	1.2*	86213	13113	35045
HO1	OS7	60	2	$\hat{67}$	$\hat{48}$	*	180	$\hat{310}$	100	$\hat{3}$	600	$\hat{4}$	$\hat{280}$	190	230	$\hat{2}$	$\hat{2}$	245		$\hat{0.001}$	$\hat{0.9}$	$\hat{0.70}$	0.84	13997	$\hat{5163}$	2170
ZA1	OS8	60	$\hat{3}$	$\hat{10}$	$\hat{55}$	420	130	580	80	$\hat{2}$	100	$\hat{7}$	180	110	160	$\hat{4}$	$\hat{2}$	317	307	0.005	$\hat{1.5}$	$\hat{1.16}$	1.43	25100	38447	21306
			0	50	0					0	0	0				0	3			ns	1**	ns	**			
QZ1	OS8	60	*	95	50	160	200	320	50	6	900	1	80	170	260	3	2	297		0.017	1.2	0.87	1.2*	26264	39224	23399
QM	OS9	140	5	$\hat{82}$	$\hat{36}$	320	200	370	100	$\hat{4}$	800	$\hat{2}$	190	130	220	$\hat{3}$	$\hat{2}$	281	423	$\hat{0.040}$	$\hat{1.0}$	0.81	1.05	9364	19241	6292
1			0	0	0					0		0				2	4			ns	2ns	ns	ns			
SM1	OS9	60	3	84	58	*	140	181	90	2	680	3	760	140	240	5	3	442		0.054	2.2	1.00	1.26	21594	15106	69354
SM2	OS9	120	$\hat{*}$	$\hat{45}$	$\hat{*}$	910	800	$\hat{960}$	170	$\hat{*}$	620	$\hat{3}$	930	730	300	$\hat{6}$	$\hat{4}$	547		$\hat{0.063}$	$\hat{0.7}$	0.96	$\hat{1.97}$	$\hat{11340}$	60171	10328
FA2	OS1	140	*	$\hat{85}$	19	190	140	990	120	4	530	$\hat{3}$	10	110	280	$\hat{4}$	$\hat{1}$	278	289	$\hat{0.031}$	$\hat{1.5}$	0.44	$\hat{0.97}$	$\hat{34534}$	31597	$\hat{22895}$
		0		0	0					0		0				1	6			**	8**	**	ns			
KM	OS1	80	4	59	20	240	160	104	160	1	500	6	660	140	200	3	2	300		0.024	1.3	0.74	0.77	42856	10583	14507
KR1	$\hat{OS1}$	40	$\hat{2}$	$\hat{64}$	$\hat{39}$	160	200	$\hat{167}$	40	$\hat{2}$	470	$\hat{1}$	660	160	690	$\hat{4}$	$\hat{3}$	381	301	$\hat{0.013}$	$\hat{1.8}$	$\hat{0.71}$	$\hat{1.01}$	18986	42628	98568
	1		0	0	0			0		0		8				4	1			**	8**	*	ns	3		
												0				6	7									
HA1	OS1	40	3	56	22	430	240	270	70	2	530	2	300	100	260	2	1	221		0.005	0.6	0.69	0.75	25181	4254	2797
GU1	$\hat{OS1}$	180	$\hat{2}$	$\hat{43}$	$\hat{41}$	40	130	390	140	$\hat{1}$	370	$\hat{5}$	220	120	200	$\hat{2}$	$\hat{1}$	194	194	0.003	$\hat{0.6}$	$\hat{0.40}$	$\hat{0.47}$	19396	14112	14914
	2		0	0	0					0		0				2	5			ns	7**	**	**			
																9	9									
YZ1	OS1	80	3	62	20	20	160	730	100	1	500	1	520	200	170	2	2	250	234	0.005	1.1	0.71	0.78	12061	2985	2588
	3		0	0	0					0		6				6	3			ns	6ns	*	*			
												0				3	7									
YZ2	OS1	120	6	51	25	190	160	310	120	4	400	5	20	180	170	2	2	218		0.010	0.6	0.03	0.52	11018	70599	22578
Mea	$\hat{}$	96	$\hat{3}$	$\hat{71}$	$\hat{31}$	207	200	557	112	$\hat{3}$	648	$\hat{1}$	493	182	234	$\hat{3}$	$\hat{2}$	286	286	**	$\hat{}$	$\hat{}$	$\hat{}$			

****, *** and *ns* denote significant at $p \leq 0.01$, $p \leq 0.05$ and non significant respectively.

b =regression coefficient of essential oil content over environmental index ($H_0: b_i=1$), Sd^2 =Variance due to deviation from regression ($* 10^6$) ($H_0: Sd_i^2=0$), σ^2 =Shukla's stability variance ($H_0: \sigma_i^2=0$).