Supporting Information I. MANOVA and Hotelling T^2 Tests for the Overall Differences between Two

Years and Results of Student's t Tests for the Significance of Between-Years Differences in Each

Tocopherol.

Summary of MANOVA tests			
Wilks'Lambda = 0.60787, F(14.312) = 6.298, p < 0.0000			
Summary of Hotelling T^2 tests (lower triangle) and univariate student's t tests (upper triangle) for the differences between pair of groups			
	2001	2002	2003
2001	-------	β-T, γ-T, β-TTR	γ-T, β-TTR, δ-T
2002	$T^2 = 32.76$ $F_{(7.10)} = 4.43$ p< 0.0001	-------	γ-T, γ-TTR, δ-T
2003	$T^2 = 48.59$ $F_{(7.10)} = 6.55$ p< 0.0001	$T^2 = 78.85$ $F_{(7.10)} = 10.62$ p< 0.0001	-------

Lower triangle: F_{obs} values (Hotelling T^2) and level of significance; Upper triangle: tocopherols for

which t_{obs} values were significant (p<0.05) on the univariate test of the hypothesis that two group means

are equal.

Supporting Information II. MANOVA and Hotelling T^2 Tests for the Overall Differences between Two Cultivars' Origins and Results of Student's t Tests for the Significance of Between-Origins differences in Each Tocopherol.

Summary of MANOVA tests

Wilks'Lambda = 0.26978, $F_{(21.445)}$ = 12.269, p < 0.0001

Summary of Hotelling T^2 tests (lower triangle) and univariate student's t tests (upper triangle) for the differences between pair of groups

	USA	ITALY	SPAIN	OTHERS
USA	-------	α-T, α-TTR, γ-T,γ-TTR	α-T, α-TTR, β-T, γ-T, γ-TTR, δ-T	α-T, α-TTR, β-T, γ-T, δ-T
ITALY	T^2 = 113.689 $F_{(7.55)}$ = 14.64 p< 0.0001	-------	α-TTR, β-T, δ-T	α-T, α-TTR, β-T, γ-TTR, δ-T
SPAIN	T^2 = 89.676 $F_{(7.70)}$ = 11.800 p< 0.0001	T^2 = 71.1636 $F_{(7.79)}$ = 9.4484 p< 0.0001	-------	α-T, γ-TTR, δ-T
OTHERS	T^2 = 60.8194 $F_{(7.70)}$ = 8.0026 p< 0.0001	T^2 = 122.024 $F_{(7.79)}$ = 16.201 p< 0.0001	T^2 = 97.4714 $F_{(7.94)}$ = 13.089 p< 0.0001	-------

Lower triangle: F_{obs} values (Hotelling T^2) and level of significance; Upper triangle: tocopherols for which t_{obs} values were significant (p<0.05) on the univariate test of the hypothesis that two group means are equal.