

金桔果汁濃縮加工

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四季桔原汁經連續離心(126,000rpm)所分離之油渣約佔10%，本試驗利用去油渣之四季桔汁分別進行薄膜濃縮結果：四季桔汁經連續離心後，分別以PCI AFC99在50Bar進行20°C及30°C濃縮。起始濃度為7.5°Brix，起始透流量分別為30.3 L/M²/H及40 L/M²/H，最終VCR分別達3.0及3.6，平均透流量分別為17.8 L/M²/H及20.1 L/M²/H，2種操作條件之最終滯流液濃度分別達17.4°Brix及20.6°Brix(酸度分別為12.94%及13.69%)，且透流液皆無固形物檢出。若欲全數回添精油則汁液濃縮至少需達3.9倍濃縮。四季桔利用薄膜濃縮之模式與檸檬汁相類似。

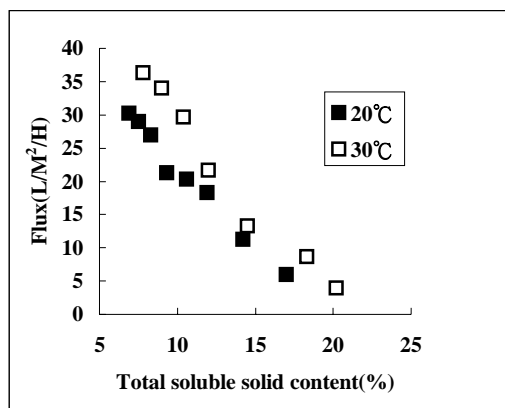


圖 1. 離心後四季桔汁在 50bar 壓力下 20°C 及 30°C 之 RO 濃縮比較

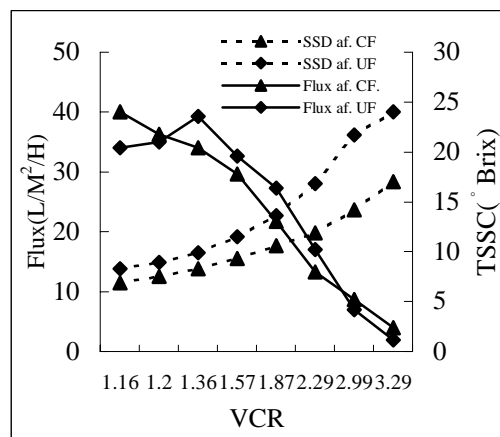


圖 2. 四季桔汁離心液及 UF 透流液在 50bar, 30°C 之 RO 濃縮比較

表 1. 四季桔汁不同處理之濃縮過程品質比較

Processing	TSSC (° Brix)	pH	Acidity (%)	Color			Viscosity (cp)
				L	a	b	
fresh juice	7.5	2.90	5.40	5.08	0.37	3.46	0.97
Afc	7.6	2.48	5.47	7.93	0.60	4.51	0.77
Afu	7.0	2.80	5.30	97.91	-1.58	7.53	0.65
Afc20°C	17.4	2.34	11.94	4.68	1.01	3.14	0.95
Afc30°C	20.6	2.29	13.69	4.88	2.16	3.35	1.11
Afu30°C	21.7	2.22	15.24	93.75	-3.94	23.54	0.85
ReAfc20°C	7.5	2.84	5.82	9.85	4.25	5.86	0.70
ReAfc30°C	7.4	2.44	5.13	16.11	8.21	10.03	0.73
ReAfu30°C	7.5	2.84	5.40	97.5	-2.00	9.57	0.64
UF retentate	9.7	2.45	5.60	1.44	0.75	1.01	1.73

Afc: juice after continue centrifugation at 12600rpm, **Afc20°C**: Afc juice concentrated with RO at 20°C, 50bar, **Afc30°C**: Afc juice concentrated with RO at 30°C, 50bar, **ReAfc20°C**: juice of Afc20°C were reconstituted to the level of Afc, **ReAfc30°C**: juice of Afc20°C were reconstituted to the level of Afc, **Afu**: juice after ultra filtration at 8Bar, 30°C (UF permeate), **Afu30°C**: UF permeate concentrated with RO at 30°C, 50bar, **ReAfu30°C**: juice of Afu30°C were reconstituted to the level of Afu.

TSSC: Total soluble solid contents