

()

(/ / : / / :)

/

DDS

APV

(/ ± /) (/ ± /) (/ ± /) (/ ± /)
(/ ± /) (/ ± /) (/ ± /) (/ ± /) (/ ± /) ()

SDS-PAGE

β (/ ± /) α
(/ ± /) () (/ ± /)

۲

۳

()

(/ / /)

2. Permeate

3. Retentate

E-mail: MahshidJahadi@yahoo.com

1.Ultrafiltration

*

KD (MMV¹)
SDS-PAGE
/ β / α . (.)
(.)
()
/ / ۲
/ / /
(.)
(.)
()

APV
۳
۴
() () DDS
/ UFPH20/6338/30FF (/) (/)
() ()
/ UFPH20/6338/18FF (/) (/)

1. Mabois- Muquet- Vassal.

2. Starter culture

3.Spiral wound

4. Molecular weight cut off

/

³SDS- PAGE

% /)

/ % /)

% / %SDS : /) (Sartarius

/ N,N,N,N-Tetramethylendiamin (AOAC : /) (AOAC

/ (pH= / (AOAC : /) (AOAC : /)

% / % / % /) (

% / % /

/ N,N,N,N-Tetramethylendiamin

.() (pH= /

/ /) (410-SHERWOOD)

(Speca 20 varian)

/ pH

(/

(Vss.1100.Akhtarian) (/)

/)

R250 (Sigma. 2-16k) g

) (

(

Helena)

(Process

Mini tab

)

, pH = /) -

/

/ (

SDS

.()

$$\delta = -C_p/C_b$$

C_p

δ

()

C_b

()

)

(/ μm

()

(nm)

(nm)

()

(/ nm)

/

(/ \pm /)

()

(/ \pm /)

β

α

(%)	(%)	(%)
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /
	/ \pm /	,
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /

/

(%)	(%)	(%)
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /
	/ \pm /	/

α

β

α

:

β

()

α

(/ \pm /)

/ \pm /

/

β

/

-

β

()

/

()

()

(/ \pm /) (/ \pm /)

β

(%)	(mg/100g)	(mg/100g)
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /
/ \pm /	/ \pm /	/ \pm /

(nm)

()

()

"

(/ ± /)

pH

()

REFERENCES

1. AOAC. 2002. *Official methods of analysis*. Washangton., DC: Association of official Analytical Chemists International.
2. Atra, R., G. Vatai, E. Bekassy-Molnar, & A. Balint. 2005. *Investigation of Ultra-and nano filtration for utilization of whey protein and lactose*. J. Food Engineering. 67: 325-332.
3. Barbano, D., M. Sciancalepore, & V.Rudan .1988. *Characterization of milk protein in ultrafiltration permeate*. J. Dairy Sci., 71: 2655-2657.
4. Dinkov, K., A. Andreev, & P. Panaiotov. 1997. *Sepration of casein and whey protein of cow milk using two types of ultrafiltration*. Milchwissenschaft. 52:127-130.
5. Brans, G., G. G. P. H. Schroen, R. G. M. Van der sman, & R. M. Boom. 2004. *Membrane fractionation of milk: state of the art and challenges*. Journal of Membrane Science. 243: 263-272.
6. Brule, G., & J. Fauquant.1981. *Mineral balance in skim milk and milk retentate: effect of physico chemical characteristics of the aqueous phase*. Journal of Dairy Research. 48:91-97.
7. Cheryan, M. 1998. *Ultrafiltration and microfiltration handbook* .Technomic publishing company. Pennsylvania.
8. Fox, P. F., & P. L. H. Mcsweeney. 2003. *Advanced Dairy Chemistry_1 Proteins 3rd Edition .Part A*. Kluwer Academic.
9. Fischbach-Green, L., & N. Potter. 1984. *Effect of ultrafiltration on retention of minerals and other components of milk*. J. Food Sci., 51: 345-347.
10. Glover, F. A.1985. *Ultrafiltration and Reverse Osmosis for the Dairy Industry*, Technical bulletin 5.England.
11. Noble, R. D., & S. A. Stern. 1995. *Membrane separation technology, principle and application*. Elsevier science, Pp:1-84.
12. Premartne, R. J., & M.A. Cousin.1991. *Change in the chemical composition during ultrafiltration of skim milk*. J. Dairy Sci., 74:788-795.
13. Renner, E., & M. H. Abd el-salam. 1991.*Application of ultrafiltration in the dairy industry* .Elsevier Applied Science.
14. Tong, P. S., D. M. Barbano, & M. A. Rudan. 1988. *Characterization of proteiaceous membrane foulant and flux decline during the early stage of whole milk ultrafiltration*. J. Dairy Sci., 71:604-612.

- :
15. Verdi, R. J., D. M. Barbano, M. E. Dellavalle, & G. F. Senky. 1984. *Variability in true protein, casein non protein nitrogen, and proteolysis in high and low somatic cell milks*. J. Dairy Sci., 71: 230-242.
 16. Yan, S. H., C. G. Hill, & C. H. Amundson. 1979. *Ultrafiltrated a Whole Milk*. J. Dairy Sci., 62 :23-40.

