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APPENDIX

Table 18 Mean particle size of dacarbazine chitosan-coated alginate nanoparticles with different molecular weights of chitosan and dacarbazine concentrations

Formulation	Lot 1 (nm)	Lot 2 (nm)	Lot 3 (nm)	Mean (nm)	SD
Blank alginate NP coated with chitosan 15000	520.40	516.55	530.65	522.53	7.29
Blank alginate NP coated with chitosan 100000	540.75	537.50	525.85	534.70	7.83
DTIC 1 mg in NP coated with chitosan 15000	488.30	491.70	487.10	489.03	2.39
DTIC 2 mg in NP coated with chitosan 15000	532.00	540.00	543.00	538.33	5.69
DTIC 5 mg in NP coated with chitosan 15000	555.20	568.20	547.30	556.90	10.55
DTIC 1 mg in NP coated with chitosan 100000	541.00	556.00	549.00	548.67	7.51
DTIC 2 mg in NP coated with chitosan 100000	566.00	553.00	558.00	559.00	6.56
DTIC 5 mg in NP coated with chitosan 100000	565.80	589.20	599.30	584.77	17.18

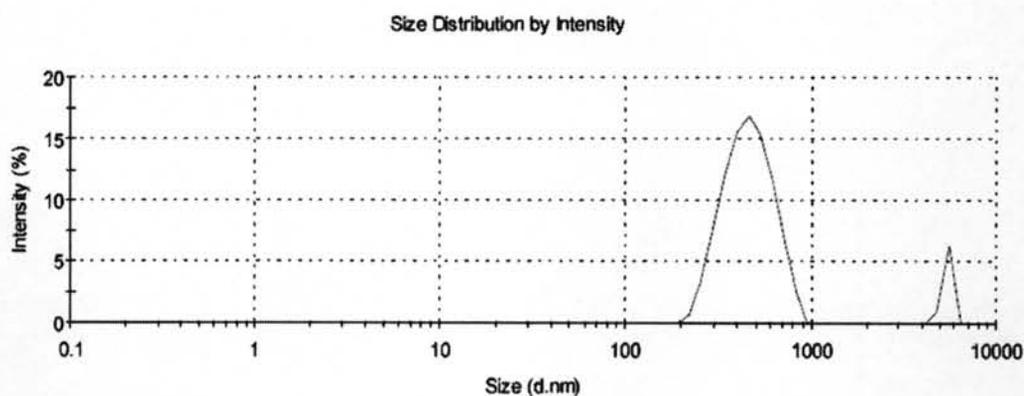


Fig 19 Size distribution of dacarbazine alginate nanoparticles coated with chitosan 15000 containing dacarbazine 1 mg

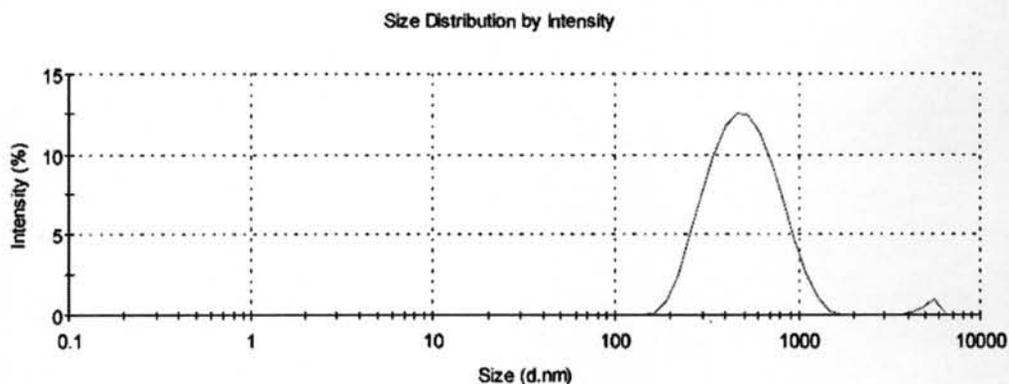


Fig 20 Size distribution of dacarbazine alginate nanoparticles coated with chitosan 15000 containing dacarbazine 2 mg

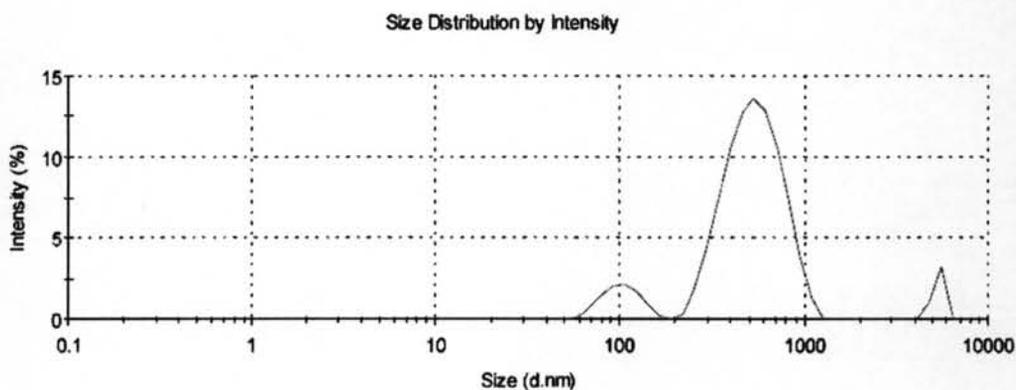


Fig 21 Size distribution of dacarbazine alginate nanoparticles coated with chitosan 15000 containing dacarbazine 5 mg

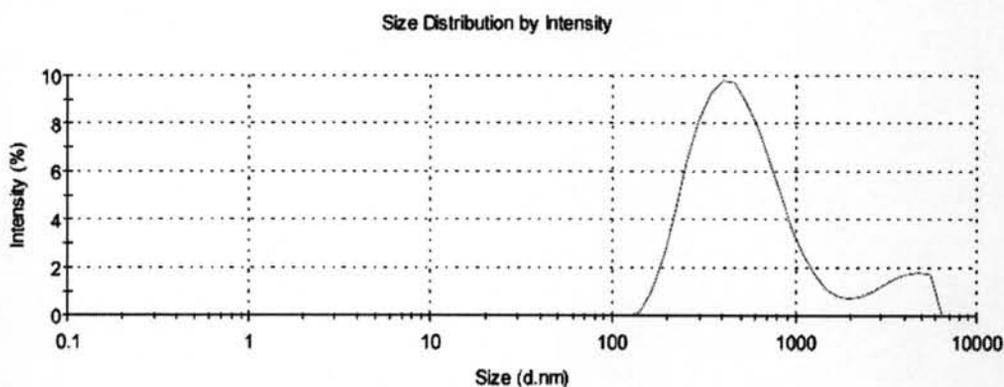


Fig 22 Size distribution of dacarbazine alginate nanoparticles coated with chitosan 100000 containing dacarbazine 1 mg

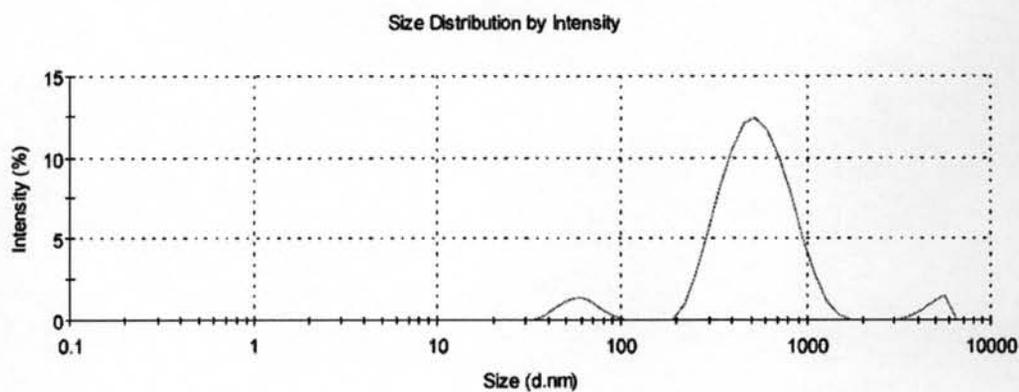


Fig 23 Size distribution of dacarbazine alginate nanoparticles coated with chitosan 100000 containing dacarbazine 2 mg

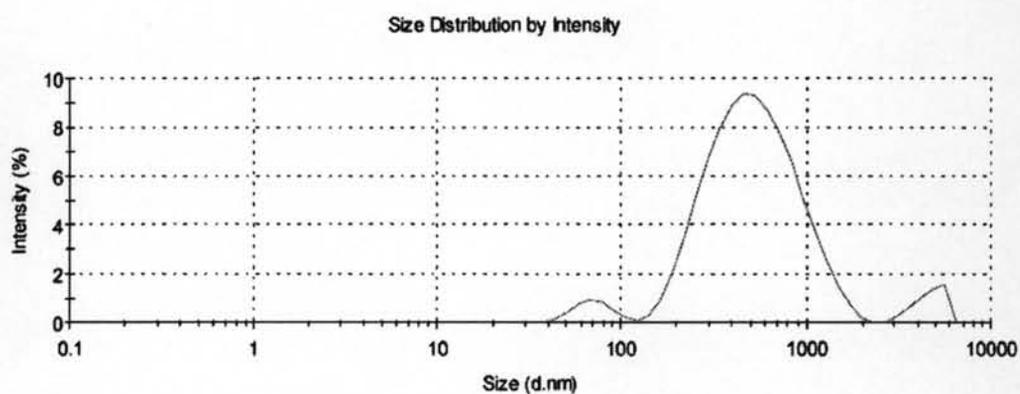


Fig 24 Size distribution of dacarbazine alginate nanoparticles coated with chitosan 100000 containing dacarbazine 5 mg

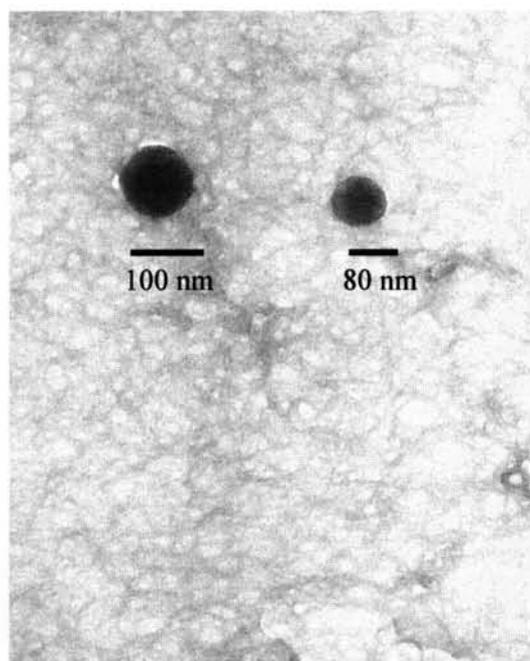
Table 19 Polydispersity index (PI) of dacarbazine chitosan-coated alginate nanoparticles with two different molecular weight of chitosan and various in dacarbazine concentration

Formulation	Lot 1	Lot 2	Lot 3	Mean	SD
Blank alginate NP coated with chitosan 15000	0.41	0.45	0.39	0.42	0.03
Blank alginate NP coated with chitosan 100000	0.55	0.58	0.52	0.55	0.03
DTIC 1 mg in NP coated with chitosan 15000	0.58	0.53	0.60	0.57	0.03
DTIC 2 mg in NP coated with chitosan 15000	0.30	0.30	0.31	0.30	0.01
DTIC 5 mg in NP coated with chitosan 15000	0.54	0.57	0.50	0.54	0.03
DTIC 1 mg in NP coated with chitosan 100000	0.38	0.39	0.38	0.38	0.01
DTIC 2 mg in NP coated with chitosan 100000	0.46	0.44	0.35	0.42	0.06
DTIC 5 mg in NP coated with chitosan 100000	0.40	0.39	0.44	0.41	0.03

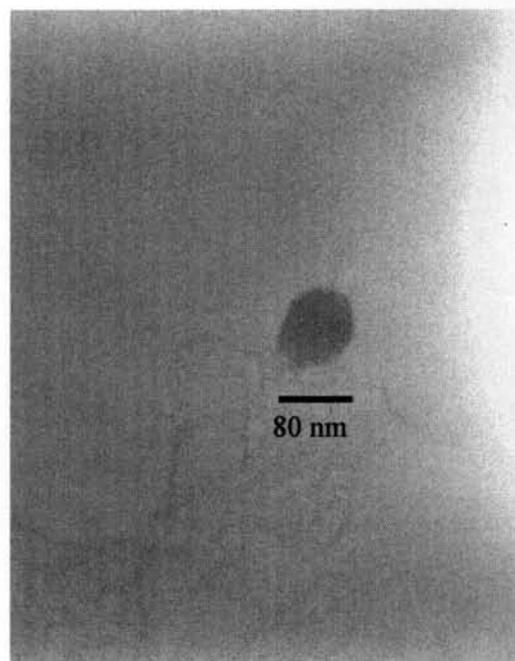
Table 20 Zeta potential of dacarbazine chitosan-coated alginate nanoparticles with two different molecular weight of chitosan and various in dacarbazine concentration

Formulation	Lot 1	Lot 2	Lot 3	Mean	SD
Blank alginate NP coated with chitosan 15000	-24.30	-25.20	-25.00	-24.83	0.47
Blank alginate NP coated with chitosan 100000	-23.90	-23.80	-25.20	-24.30	0.78
DTIC 1 mg in NP coated with chitosan 15000	-27.70	-28.20	-28.50	-28.13	0.40
DTIC 2 mg in NP coated with chitosan 15000	-27.90	-28.10	-28.90	-28.30	0.53
DTIC 5 mg in NP coated with chitosan 15000	-28.80	-29.00	-29.10	-28.97	0.15
DTIC 1 mg in NP coated with chitosan 100000	-27.70	-28.20	-28.20	-28.03	0.29
DTIC 2 mg in NP coated with chitosan 100000	-27.50	-28.20	-28.40	-28.03	0.47
DTIC 5 mg in NP coated with chitosan 100000	-28.30	-27.90	-28.00	-28.07	0.21

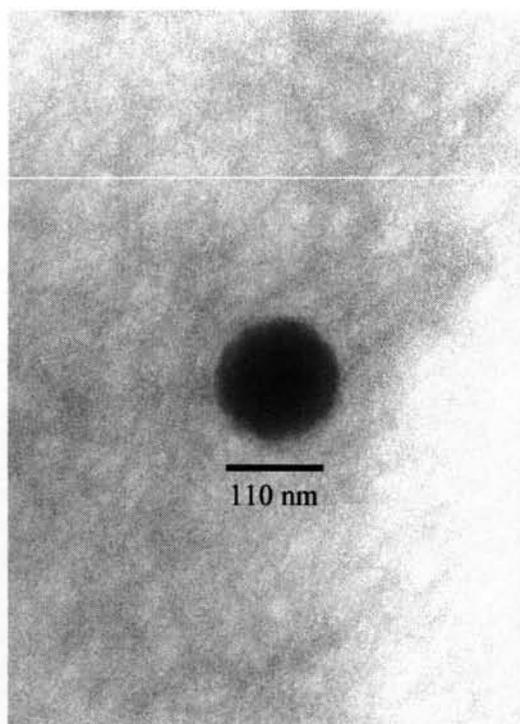
Figure 25 Transmission electron micrographs of dacarbazine chitosan-coated alginate nanoparticles.



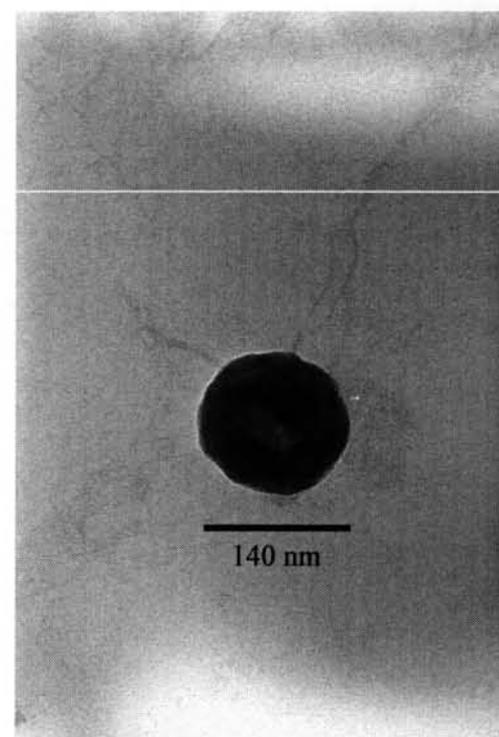
A



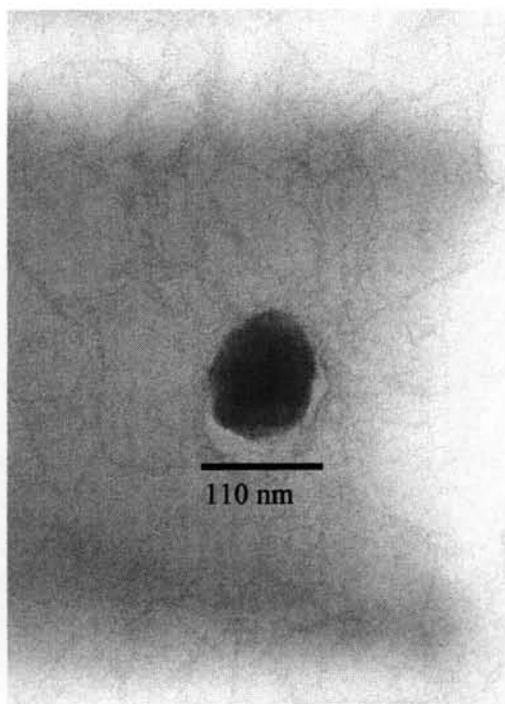
B



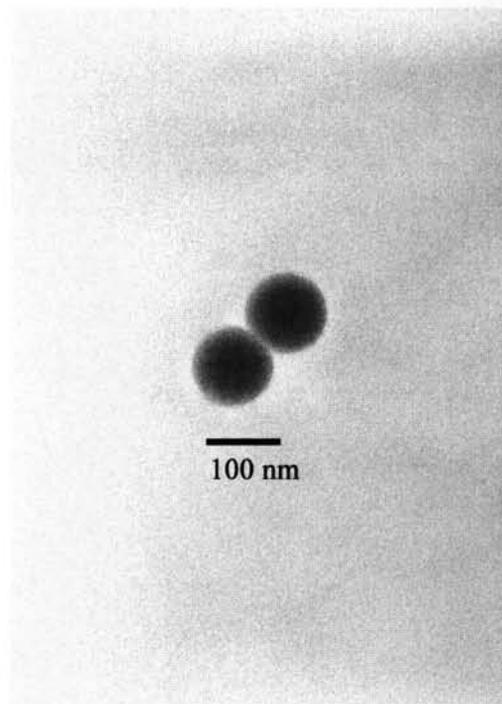
C



D



E



F

A : 1 mg dacarbazine alginate nanoparticles coated with chitosan 15000 dalton
($\times 50,000$ magnification)

B : 1 mg dacarbazine alginate nanoparticles coated with chitosan 100000 dalton
($\times 100,000$ magnification)

C : 2 mg dacarbazine alginate nanoparticles coated with chitosan 15000 dalton
($\times 100,000$ magnification)

D : 2 mg dacarbazine alginate nanoparticles coated with chitosan 100000 dalton
($\times 100,000$ magnification)

E : 5 mg dacarbazine alginate nanoparticles coated with chitosan 15000 dalton
($\times 100,000$ magnification)

F : 5 mg dacarbazine alginate nanoparticles coated with chitosan 100000 dalton
($\times 100,000$ magnification)

Table 21 Amount of untrapped dacarbazine analyzed from supernatant and washed fraction

Formulation	Amount of dacarbazine (mg)			Mean	SD
	Lot 1	Lot 2	Lot 3		
DTIC 1 mg in NP coated with chitosan 15000	0.03	0.03	0.03	0.03	0.00
DTIC 2 mg in NP coated with chitosan 15000	0.06	0.07	0.06	0.06	0.00
DTIC 5 mg in NP coated with chitosan 15000	0.30	0.33	0.30	0.31	0.01
DTIC 1 mg in NP coated with chitosan 100000	0.03	0.04	0.03	0.03	0.01
DTIC 2 mg in NP coated with chitosan 100000	0.06	0.06	0.06	0.06	0.00
DTIC 5 mg in NP coated with chitosan 100000	0.30	0.31	0.32	0.31	0.01

Table 22 Amount of entrapped dacarbazine analyzed from dacarbazine nanoparticles

Formulation	Amount of dacarbazine (mg)			Mean	SD
	Lot 1	Lot 2	Lot 3		
DTIC 1 mg in NP coated with chitosan 15000	0.37	0.39	0.39	0.38	0.01
DTIC 2 mg in NP coated with chitosan 15000	0.81	0.80	0.79	0.80	0.01
DTIC 5 mg in NP coated with chitosan 15000	1.53	1.54	1.62	1.56	0.05
DTIC 1 mg in NP coated with chitosan 100000	0.39	0.39	0.41	0.40	0.01
DTIC 2 mg in NP coated with chitosan 100000	0.82	0.82	0.83	0.83	0.01
DTIC 5 mg in NP coated with chitosan 100000	1.67	1.61	1.77	1.68	0.09

Table 23 The percentage of entrapment efficiency of dacarbazine in chitosan-coated alginate nanoparticles

Formulation	% entrapment efficiency			Mean	SD
	Lot 1	Lot 2	Lot 3		
DTIC 1 mg in NP coated with chitosan 15000	38.57	37.24	38.77	38.19	0.84
DTIC 2 mg in NP coated with chitosan 15000	40.37	39.73	40.31	40.14	0.35
DTIC 5 mg in NP coated with chitosan 15000	30.49	30.95	32.65	31.36	1.14
DTIC 1 mg in NP coated with chitosan 100000	39.81	38.71	39.10	39.21	0.56
DTIC 2 mg in NP coated with chitosan 100000	41.07	41.52	42.04	41.55	0.49
DTIC 5 mg in NP coated with chitosan 100000	33.13	32.00	34.89	33.34	1.46

VITA

Miss Aranee Torcharoenrumgduan was born on November 23, 1978 in Bangkok, Thailand. She received her Bachelor's Degree of Science in Pharmacy from the Faculty of Pharmacy, Mahidol University in 2001. After graduation, she worked at The Government Pharmaceutical Organization (GPO), Bangkok, Thailand for 5 years before entering the Master's Degree Program in Pharmaceutical Technology at Chulalongkorn University.