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Appendix

Appendix A

Table A.1 Incidence of 22 common skin diseases in Thailand (Kotrajaras et al., 1984)

	Diseases	Cases	% of total 10,500 cases
1.	Contact dermatitis, allergic	662	6.305
2.	Tinea versicolor	534	5.086
3.	Acne vulgaris	497	4.733
4.	Lichen simplex chronicus	432	4.114
5.	Tinea corporis	380	3.619
6.	Urticaria, acute	343	3.267
7.	Melasma	323	3.076
8.	Contact dermatitis, irritation	307	2.924
9.	Seborrheic dermatitis	291	2.771
10.	Tinea cruris	271	2.581
11.	Psoriasis vulgaris	243	2.314
12.	Prurigo simplex	240	2.286
13.	Pityriasis alba	229	2.181
14.	Urticaria, chronic	190	1.810
15.	Dyshidrosis	164	1.562
16.	Scabiasis	162	1.543
17.	Tinea pedis	107	1.019
18.	Atopic dermatitis, adolescent	105	1.000
19.	Tinea manuum	104	0.990
20.	Tinea facei	86	0.819
21.	Atopic dermatitis, childhood	67	0.638
22.	Atopic dermatitis, infantile	56	0.533
	Total	5,793	

Table A.2 Eleven common skin diseases in Thailand, ranking in order (Kotrajaras et al., 1984)

1. Contact dermatitis (allergic)
2. Lichen simplex chronicus
3. Tinear versicolor
4. Tinea corporis
5. Acne vulgaris
6. Urticaria (acute)
7. Contact dermatitis (irritation)
8. Prurigo simplex
9. Tinea cruris
10. Seborrheic dermatitis
11. Melasma

Table A.3 Sex incidence of 22 common skin diseases (Kotrajaras et al., 1984)

Common Skin diseases	Sex incidence	
	Male	Female
Contact dermatitis	-	more
Tinea versicolor	more	-
Aene vulgaris	-	more
Lichen simplex chronicus	-	-
Tinea corporis	-	-
Urticaria, acute	-	more
Melasma	-	more
Contact dermatitis, irritation	-	more
Seborrheic dermatitis	-	-
Tinea cruris	more	-
Psoriasis vulgaris	-	-
Prurigo simplex	-	more
Pityriasis alba	-	more
Urticaria, chronic	-	more
Dyshidrosis	-	-
Scabiasis	more	-
Tinea pedis	more	-
Atopic dermatitis (adolescent)	-	more
Tinea manuum	more	-
Tinea faciei	-	-
Atopic dermatitis (childhood)	-	-
Atopic dermatitis (infantile)	-	-

Table A.4 Age incidence of 22 common skin diseases (Kotrajaras et al., 1984)

Common Skin diseases	Age incidence (years)
Contact dermatitis, allergic	50^{+}
Tinea versicolor	20-24
Aene vulgaris	20-24
Lichen simplex chronicus	50^{+}
Tinea corporis	15-15
Urticaria, acute	40-49
Melasma	30-34
Contact dermatitis, irritation	20-24
Seborrheic dermatitis	50^{+}
Tinea cruris	20-24
Psoriasis vulgaris	50^{+}
Prurigo simplex	$0\text{-}6^{+}$
Pityriasis alba	15-19
Urticaria, chronic	25-29
Dyshidrosis	20-24, 50^{+}
Scabiasis	15-19
Tinea pedis	20-24
Atopic dermatitis, adolescent	20-24
Tinea manum	20-24
Tinea facili	15-19

Appendix B

MEDIA and REAGENTS

Sabouraud dextrose agar (SDA)

Formulation :	Glucose	40.0	g.
	Peptone	10.0	g.
	Agar	15.0	g.
	Distilled Water	1,000.0	ml.

Preparation :

1. Suspend the reagents in 1,000ml. of distilled water, mix thoroughly

2. Heat to boiling to dissolve completely.

3. Dispense into approprate containers

4. Sterilize in the autoclave for 15 minutes at 15 pounds pressure at 121°C. Avoid overheating which could result in a softer agar medium. The final pH is 5.6. The medium is kept below 30°c in a refrigerator.

Sabouraud dextrose broth (SDB)

Formulation :	Glucose	20.0	g.
	Peptone	10.0	g.
	Distilled Water	1,000.0	ml.

Preparation :

1. Suspend the reagents in 1,000 ml. of distilled water, mix thoroughly.

2. Heat to dissolve completely.

3. Dispense in appropriate container.

4. Sterilize in the autoclave for 15 minutes at 121°C at 15 pounds pressure.

The final pH is 5.6. Refrigerate it below 30°c,

Yeast Nitrogen Base (YNB) 10x

Formulation :	Yeast Nitrogen Base	6.7 g.
	Bacto-Dextrose	5.0 g.
	Distilled Water	100.0 ml

Preparation :

1. Suspend the reagents in 100.0 ml. distilled water and warm to effect complete solution.

2. Sterilize by millipore filtration

3. Keep in refrigerator and use as needed. (Difco Manual 10th ed.)

0.1 M. Phosphate buffer pH 7.0

0.1 M Potassium dihydrogen orthophosphate

0.1 M Disodium hydrogen orthophosphate

To an appropriate amount of 0.1 M potassium dihydrogen orthophosphate, add sufficient 0.1 M disodium hydrogen orthophosphate to produce a pH 0f 7.0 (BP 1980)

1X YNB

Formulation :

10X YNB	10.0 ml.
Sterile distilled water	90.0 ml.

Preparation :

Pipette 10X YNB, under aseptic conditions, into sterile distilled-water, mix well.

Buffered YNB

Formulation :

10X YNB	10.0 ml.
Sterile 0.01 M Phosphate buffer pH 7.0	90.0 ml.

Preparation :

Pipette 10X YNB, under aseptic conditions, into sterile phosphate buffer, mix well.

Loeffer's Methylene Blue

Formulation :

Methylene blue	0.3 g.
Ethanol (95 %)	30.0 ml.
Distilled water	100.0 ml.

Preparation :

1. Dissolve Methylene blue in ethanol.
2. Add distilled water, mix well.
3. Filter through filter paper.

Lactophenol Cotton Blue

Formulation :

Lactic acid	20.0 ml.
Phenol crystals	20.0 g.
(or Phenol concentrated)	20.0 ml.
Glycerol	40.0 ml.
Cotton blue	0.05 g.
Distilled water	20.0 ml.

Preparation :

1. Dissolve cotton blue in distilled water.
2. Add phenol, lactic acid and glycerol.
3. Filter through filter paper.

Plastic Araldite 502

Formulation :

Araldite 502	27.0 ml.
DDSA (Dodecanyl Succinic Anhydrided)	23.0 ml.
DMP-30 (2,4,6-tri (dimethyl aminomethyl phenyl)	1.0 ml.

Preparation :

1. Mix araldite 502 and DDSA thoroughly then add DMP-30.
2. The mixture was treated in the vacuum evaporator to remove air bubble. The mixture should be kept in a refrigerator.

1% Alcian Blue in Distilled Water

Formulation :

Alcian blue	1.0 g.
Distilled water to	100.0 ml.

Preparation :

Dissolve alcian blue in distilled water to the final volume 100.0 ml.

0.2 M Sodium Cacodylate Buffer pH 7.4

Formulation :

Sodium cacodylate	4.20 g.
Distilled water q.s.	100.0 ml
1N HCl	sufficient volume

Preparation :

1. Dissolve Sodium cacodylate in distilled water to the volume 100.0 ml.

2. Adjust the pH of this solution with 1N HCl to pH 7.4.

0.2 M Calcium acetate

Formulation :

Calcium acetate	3.16 g.
Distilled water q.s.	100.0 ml.

Preparation :

Dissolve Calcium acetate in distilled water to the volume 100.0 ml.

Reynold's Lead Citrate Stain

Formulation :

Lead nitrate	1.33 g.
Sodium citrate	1.76 g.
1 N. NaOH	8.0 ml.
Freshly boiled and cooled distilled water q.s.	50.0 ml.

Preparation :

1. Mix Lead nitrate, Sodium citrate and 30.0 ml of distilled water.

2. Shake the mixture for 30 minutes then add 1 N NaOH and distilled water to 50.0 ml.

4 % Uranyl acetate in 70% alcohol

Formulation :

Uranyl acetate	2.0 g.
70 % Ethanol q.s.	50.0 ml.

Preparation :

1. Mix well to homogenous solution.

2. Filter through filter paper. The solution must be protected from light.

Triton X-100 Scintillation Fluid Cocktail

Formulation :

PPO (2,5 - Diphenyl - oxazole)	5.5 g.
POPOP (1,4-Bis-(5-phenyl-2-oxazolyl)-benzol)	0.1 g.

Triton x-100	333.0	ml.
Toluene	667.0	ml.

Preparation :

Mix all of the reagents and stir in the dark to the homogenous mixture. Keep in light resistance container.

2X Cacodylate Buffer pH 7.4

Formulation :

0.2 M Sodium cacodylate	25.0	ml.
0.2 M Calcium acetate	1.0	ml.
Distilled water q.s.	50.0	ml.

Notes :

1. Filter as needed.

2. Dilute with equal volume of distilled water to make the 1X cacodylate buffer.

2.5 % Glutaraldehyde in Cacodylate Buffer

Formulation :

25 % Glutaraldehyde	5.0	ml.
0.2 M Sodium cacodylate	12.5	ml.
0.2 M Calcium acetate	0.5	ml.
Distilled water q.s.	50.0	ml.

Note :

Filter through filter paper.

1 % Osmium tetroxide in Cacodylate Buffer

Formulation :

2 % OsO_4 in distilled water	50.0	ml.
2X cacodylate buffer	50.0	ml.

Appendix C

Table A.5 Kinetics of inhibition of growth and killing of *Candida albicans* treated with TK

Inhibition time (hour)	Control Culture		200 µg/ml TK treated culture		1,000 µg/ml TK treated culture	
	Corrected Optical Density (530 nm)	Viable Cell Counts	Corrected Optical Density (530 nm)	Viable Cell Counts	Corrected Optical Density (530 nm)	Viable Cell Counts
Blank Control	0.017	-	0.026	-	0.051	-
0	0.125	1.95×10^6	0.136	2.0×10^6	0.127	1.98×10^6
2	0.141	2.45×10^6	0.133	1.40×10^6	0.116	9.25×10^5
4	0.237	3.90×10^6	0.100	7.75×10^5	0.091	3.50×10^5
6	0.398	4.50×10^6	0.088	1.25×10^5	0.085	no viable cell
8	0.658	6.05×10^6	0.081	5.0×10^4	0.080	no viable cell
24	1.671	2.93×10^7	0.076	no viable cell	0.078	no viable cell

Table A.6 Kinetics of inhibition of growth and killing of *Arthroderma benhamiae* treated with TK

Incubation time (day)	Dry weight of mycelium (mg,)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	3.10	3.20	3.17
1	9.27	4.30	3.10
3	11.07	9.57	1.53
5	19.47	6.90	1.76
7	29.03	9.20	0.77

Table A.7 ^{3}H-thymidine monophosphate incorporation in *Candida albicans* after treated with TK (precipitate)

Incubation time (hour)	Total Disintregations per Minute (DPM)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	328	256	344
1	672	656	530
2	1,293	760	658
4	1,465	742	591

Table A.8 ^{3}H-thymidine monophosphate incorporation in *Candida albicans* after treated with TK (perchloric acid soluble fraction)

Incubation time (hour)	Total Disintregations per Minute (DPM)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	535	523	535
1	942	733	688
2	1,191	972	628
4	1,628	651	570

Table A.9 ^{3}H- thymidine monophosphate incorporation in *Arthroderma benhamiae* after treated with TK (precipitate)

Incubation time (day)	Total Disintegrations per Minute (DPM)	
	Control culture	500 µg/ml TK treated culture
0	128	158
1	188	156
3	1,949	253
6	13,014	123

Table A.10 ^{3}H-thymidine monophosphate incorporation in *Arthroderma benhamiae* after treated with TK (perchloric acid soluble fraction)

Incubation time (day)	Total Disintegrations per Minute (DPM)	
	Control culture	500 µg/ml TK treated culture
0	826	1,202
1	1,209	802
3	2,595	2,477
6	21,149	130

Table A.11 ^{14}C-glucose incorporation in *Candida albicans* after treated with TK (precipitate)

Incubation time (hour)	Total Disintegrations permminute (DPM)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	1,405,390	1,077,087	1,474,451
1	14,738,230	9,688,824	4,710,061
2	9,243,337	8,465,034	4,364,484
4	34,247,354	15,683,034	10,895,781

Table A.12 ^{14}C-glucose incorporation in *Candida albicans* after treated with TK (perchloric acid soluble fraction)

Incubation time (hour)	Total Disintegrations per minute (DPM)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	668,306	694,227	707,479
2	3,233,481	573,729	265,443
4	11,482,171	553,936	248,121

Note : Samples at the 1-hour incubation were miss discarded by accident

Table A.13 ^{14}C-glucose incorporation in *Arthroderma benhamiae* after treated with TK (precipitate)

Incubation time (day)	Total Disintegrations per Minute (DPM)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	467	519	519
1	18,791	2,121	441
3	467,518	4,747	1,533
7	56,169,256	4,161	601

Table A.14 ^{14}C-glucose incorporation in *Arthroderma benhamiae* after treated with TK (perchloric acid soluble fraction)

Incubation time (day)	Total Disintegrations per Minute (DPM)		
	Control culture	200 µg/ml TK treated culture	1,000 µg/ml TK treated culture
0	850	773	656
1	7,560	3,161	2,419
3	101,654	7,970	4,297
7	2,050,850	4,247	2,184

Appendix D

Plate 1

Phase contrast mictographs of *Candida albicans* ATCC 1023

Control at the 0-hour incubation

There are only viable cell which are not stained by Loeffer's methylene blue. The blastoconidia are spherical to oval with smooth surface.

a. x 400 with LBD-2 filter

b. x 1000 with LBD-2 filter

Plate 24

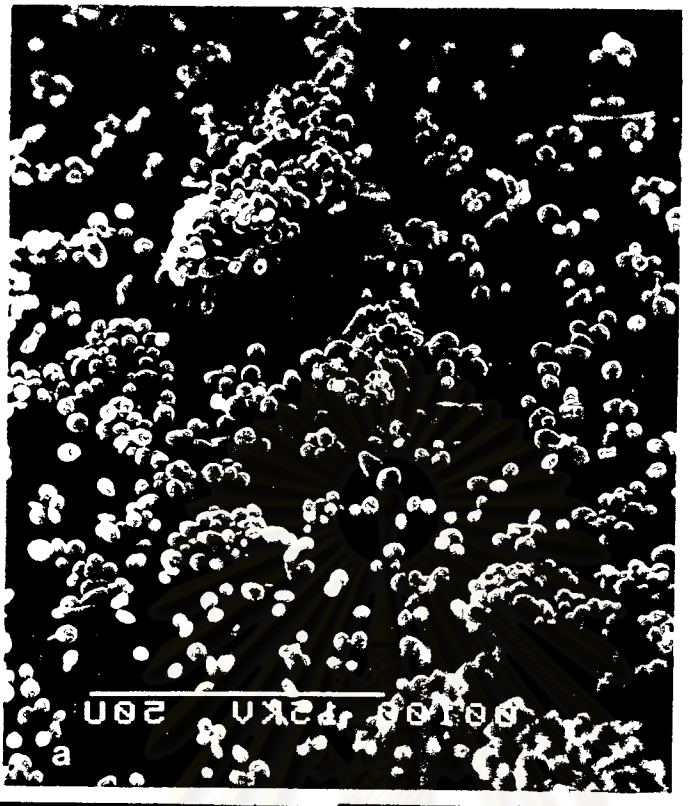


Plate 25

Scanning electron micrographs of *C. albicans* treated with 200 µg/ml TK at the 4-hour incubation

Note the wrinkles of blastoconidia and cytoplasmic content leakage (ct, ΔΔ).

a., b., c. x 6650

d. x13300

e. x 19950

Plate 25

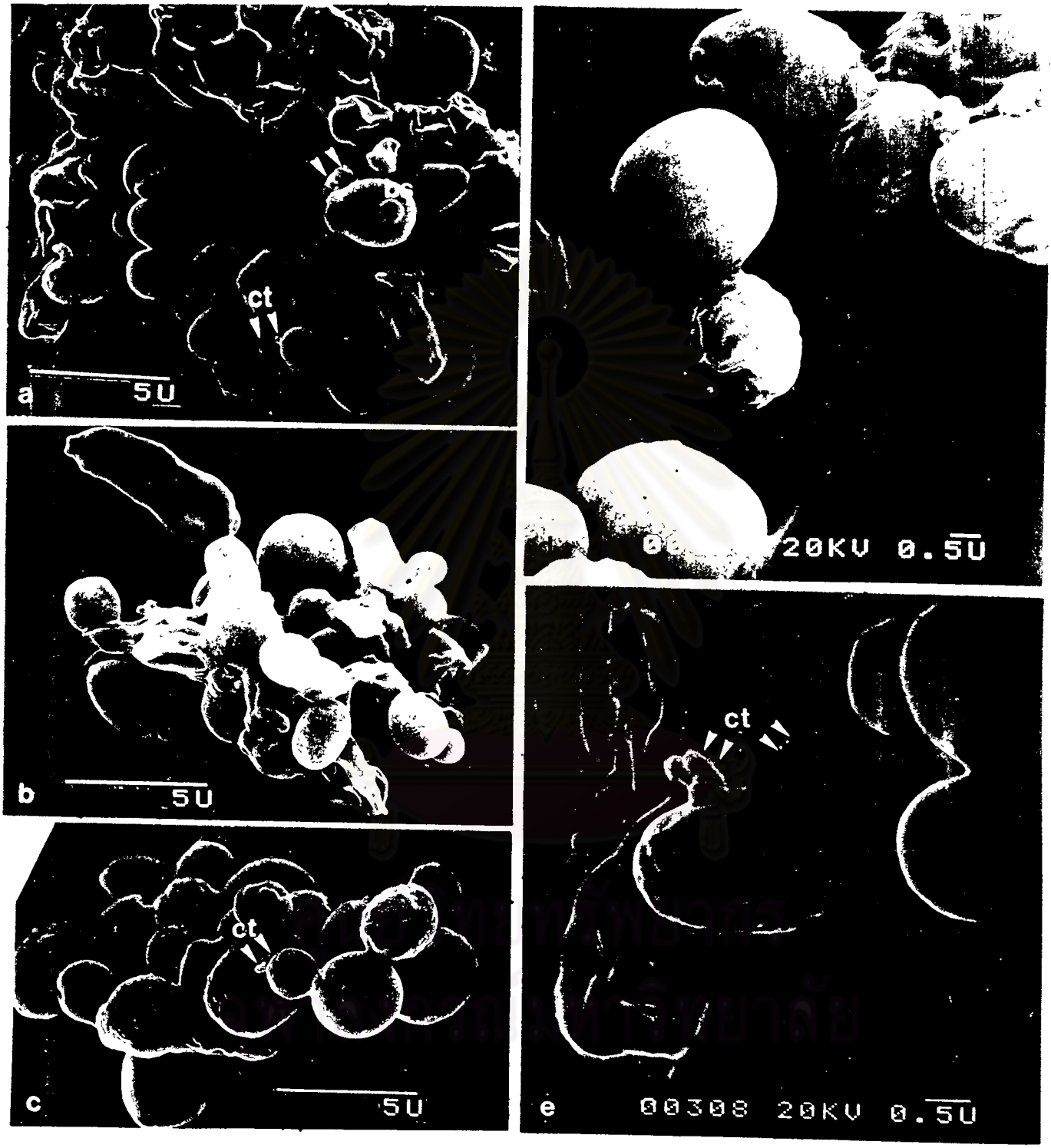


Plate 26

Scanning electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 4-hour incubation

Note the shrink and collapsed blastoconidia (a., b., c.) with cytoplasmic content leakage (a., b.) . Broken cell (△) was observed (d.) .

a. x 3591

b. x 6650

c. x 11039

d. x 14630

Plate 26

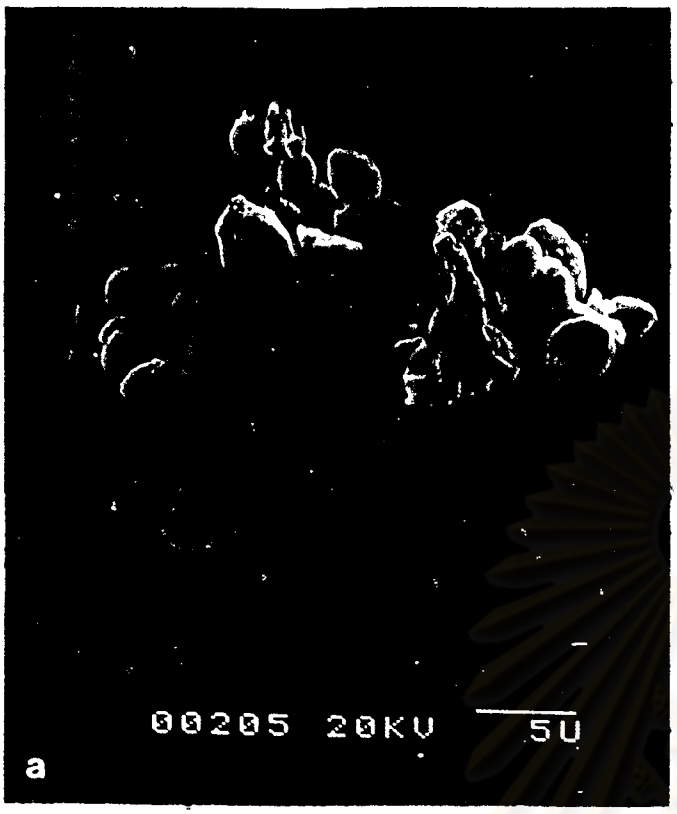


Plate 27

Scanning electron micrographs of *C. albicans* treated with 200 µg/ml TK at the 8-hour incubation

Note the shrink, collapsed blastoconidia (a., b., d., e.) and pseudomycelium (c.), d. and e. shows the shrink blastoconidia attached to cover slip.

a. x 4655

b. x 13300

c. x 4123

d. x 7980

e. x 13300

Plate 27

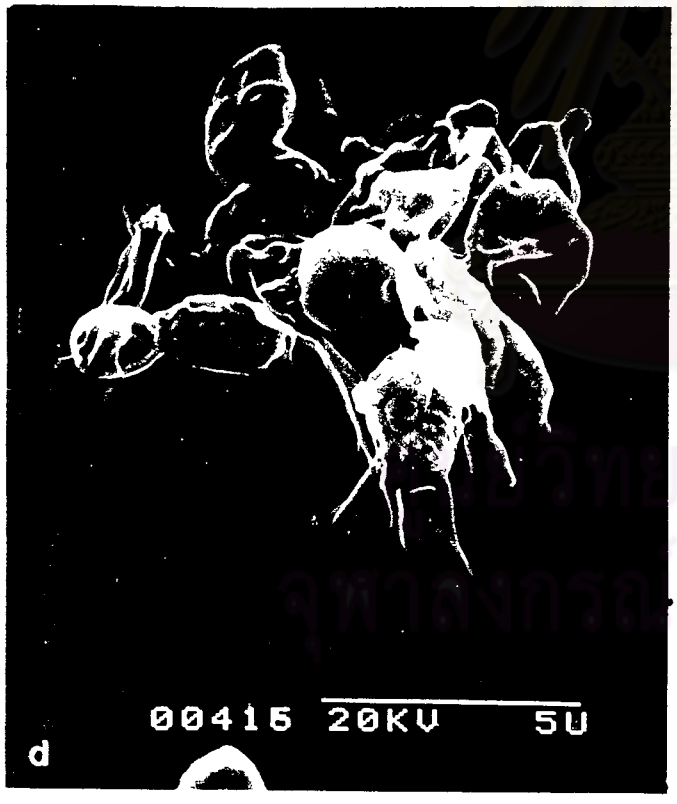


Plate 28

Scanning electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 8-hour incubation

Note the shrink blastoconidia with cellular content leakage (a., c., d.), spiny surface of pseudomycelium (b.), and very rough surface cell (△) (c.).

a. x 6517

b. x 13300

c. x 15960

d. x 14630

Plate 28

Plate 29

Scanning electron micrographs of *C. albicans* treated with 200 µg/ml TK at the 24-hour incubation

Note the collapsed blastoconidia, collapsed pseudomycelium (a., b., c.), and cellular content leakage (ct) (d., e.).

a. x 1463

b. x 5852

c. x 7315

d. x 5852

e. x 15960

Plate 29

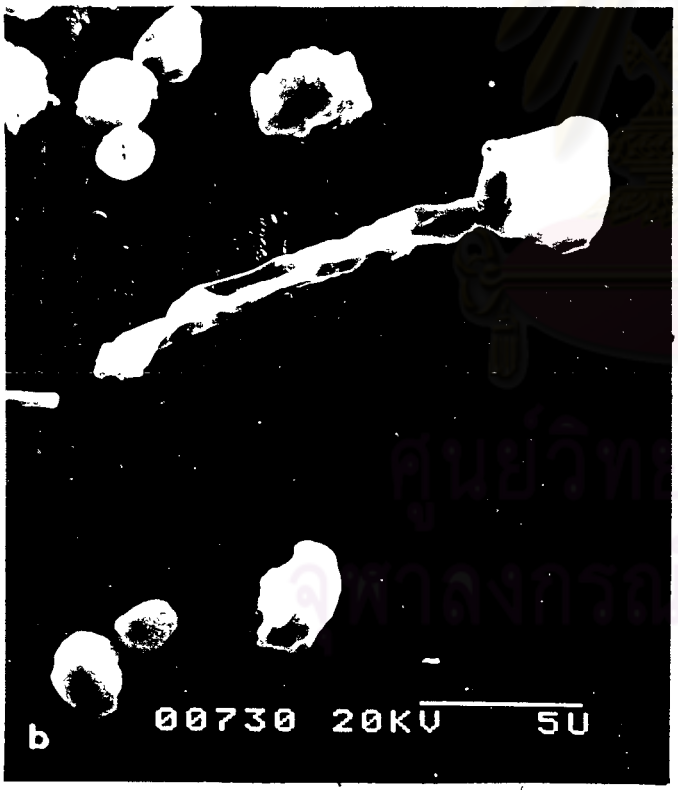


Plate 30

Scanning electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 24-hour incubation

Note the shrink and collapsed blastoconidia with cellular content leakage (ct.) (d., e.) and distorted fragment of necrotic cell (c.) ; bs = bud scar.

a. x 4655

b., c. x 13034

d., e. x 17290

Plate 30

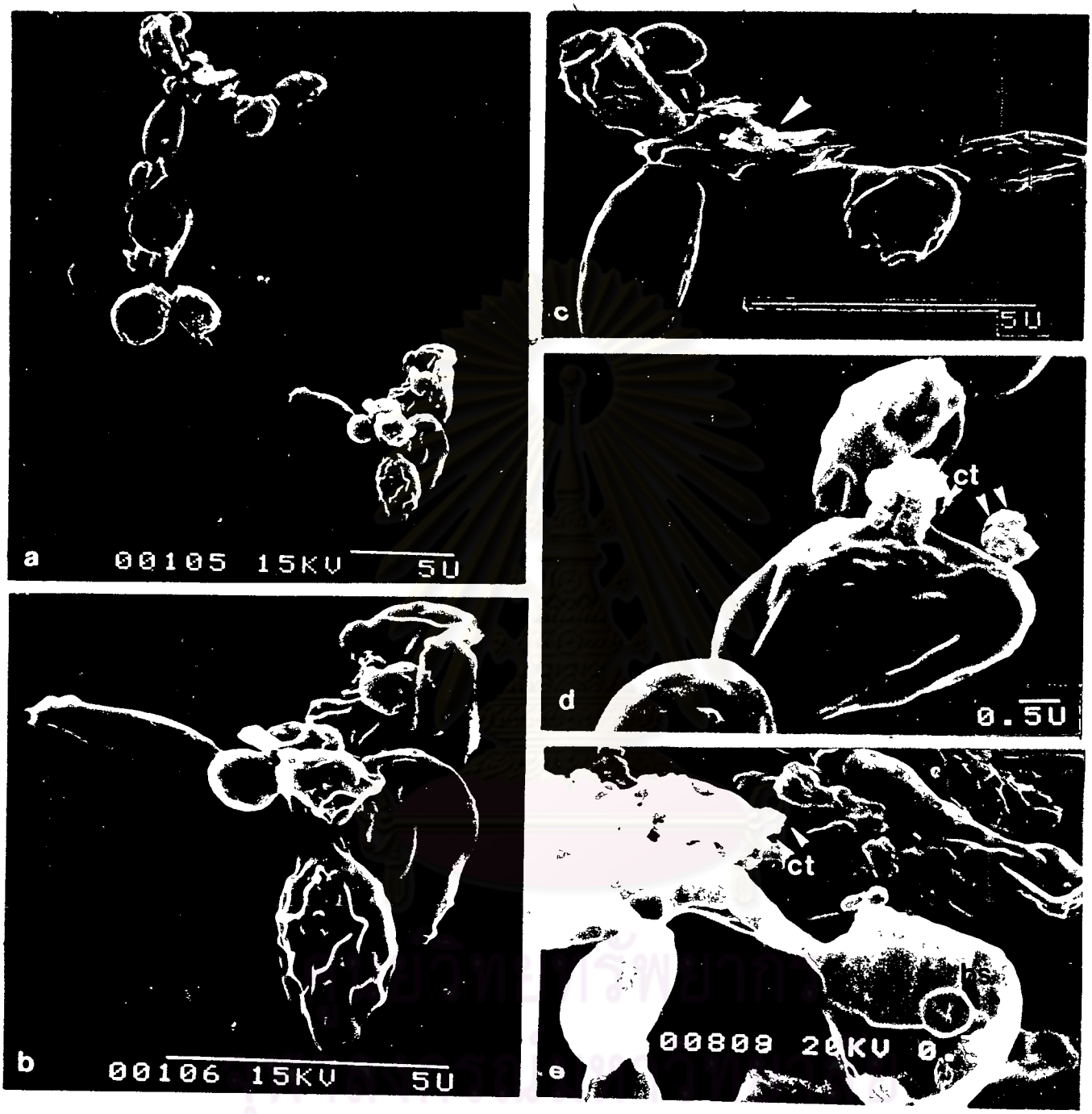


Plate 31

Scanning electron micrographs of *C. albicans* : Control at the 24-hour incubation

Note numerous pseudomycelial formation and smooth surface blastoconidia and pseudomycelium.

a. x 1170

b. x 7980

c. x 18620

Plate 31

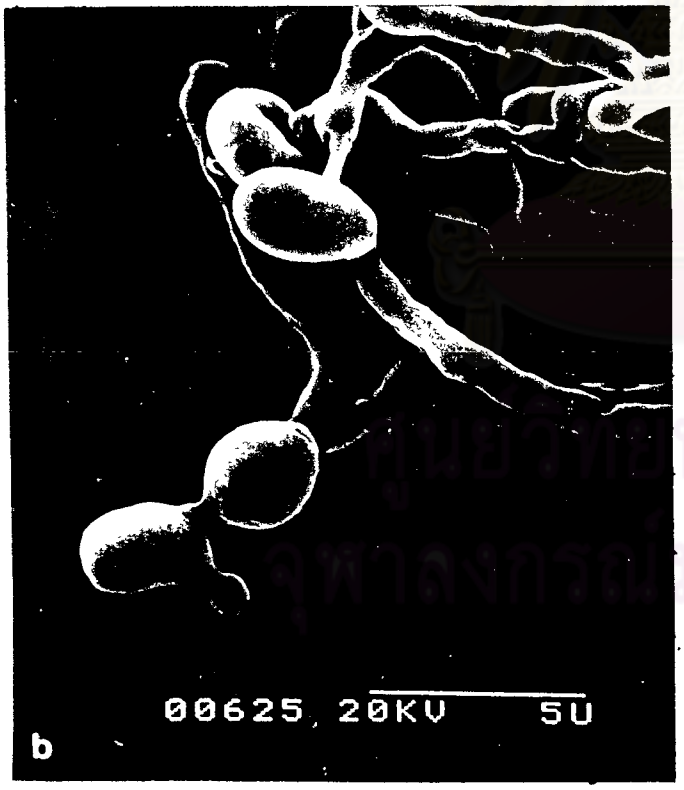


Plate 32

Scanning electron micrographs of *Arthroderma benhamiae*,

a. Control at the 0-day incubation

b., c., d. *A. benhamiae* treated with 200 µg/ml TK at the 1-day incubation

Note the bulging mycelium (bm) and the shrink mycelium.

a., b., c. x 3325

d. x 7049

Plate 32

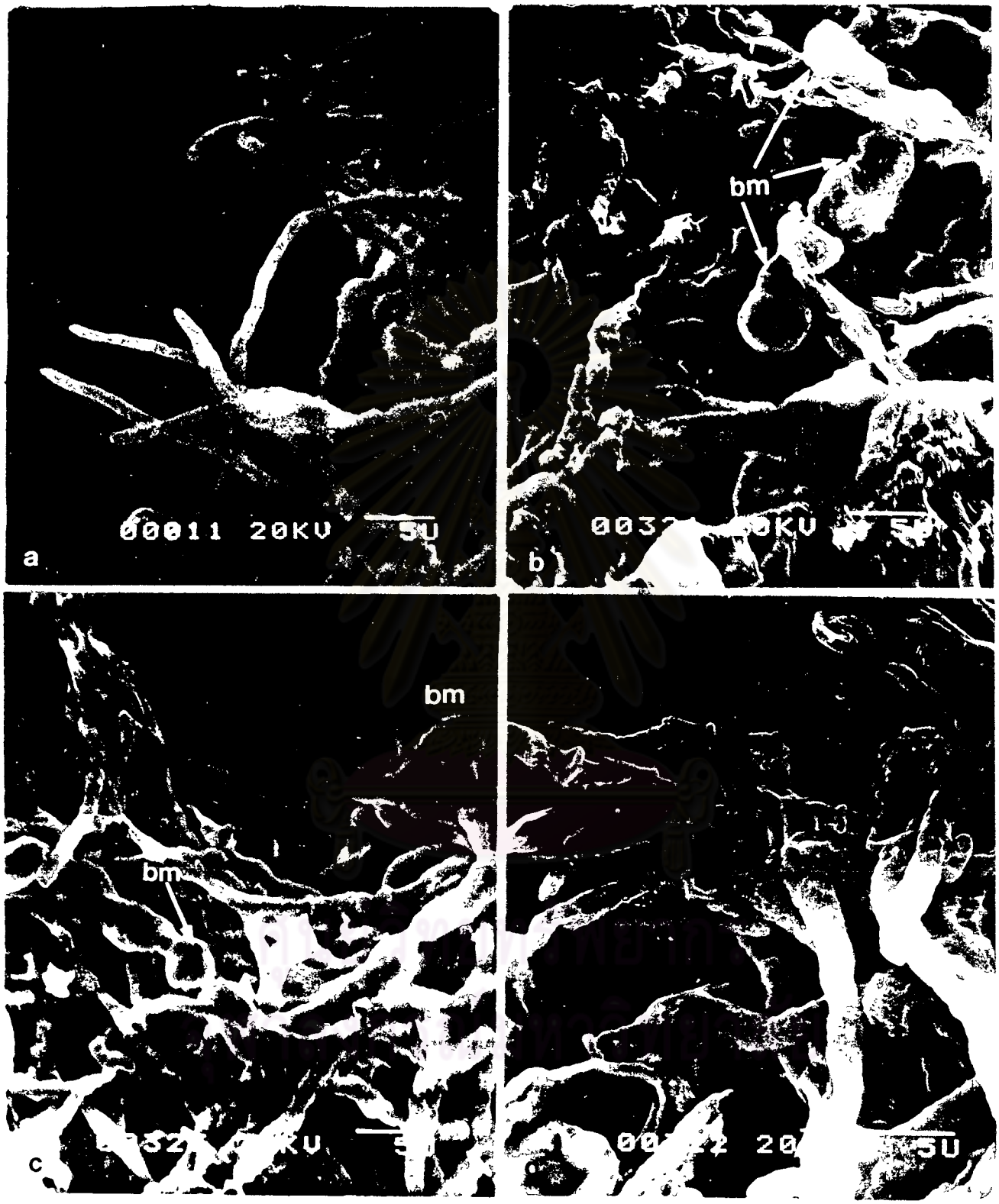


Plate 33

Scanning electron micrographs of *A. benhamiae* treated with 1,000 µg/ml TK at the 1-day incubation

Note the short distorted mycelium and bulging mycelium (bm).

a., b. x 3325

c. x 7049

Plate 33

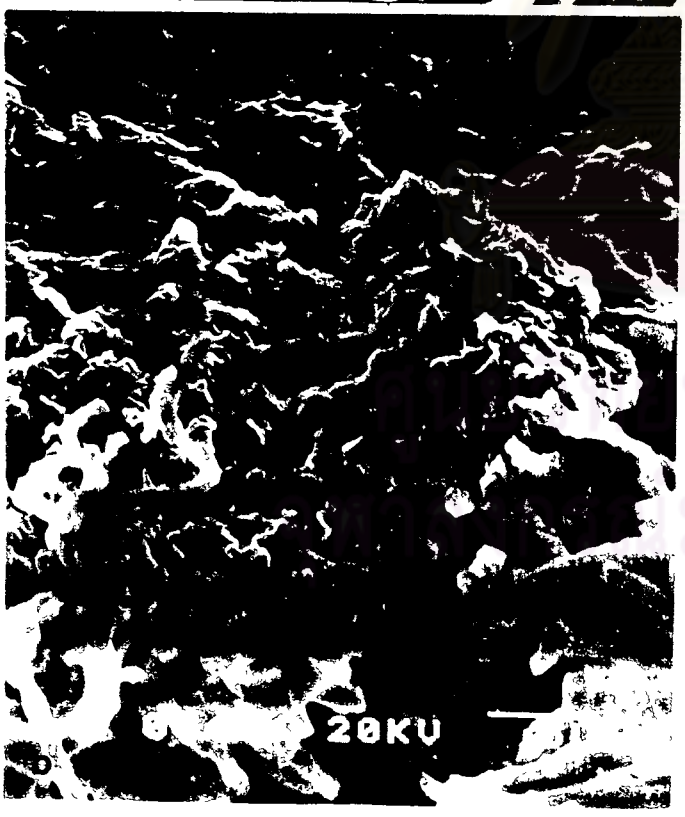


Plate 34

Scanning electron micrographs of *A. benhamiae* treated with 200 µg/ml TK at the 3-day incubation

Note the shrink bulging mycelium (△) (a.) and irregular rough surface hyphal (b.).

a. x 3325

b. x 7049

Plate 34

Plate 35

Scanning electron micrographs of *A. benhamiae* treated with 1000 µg/ml TK at the 3-day incubation

Note the shrink and distorted mycelium in a. In high magnification, shrink bulging mycelium (△) and distorted mycelium are shown (b.). The deformed mycelium attached to the cotton wool fiber are shown in c. and d.

a., b. x 3325

c., d., x 7049

Plate 35

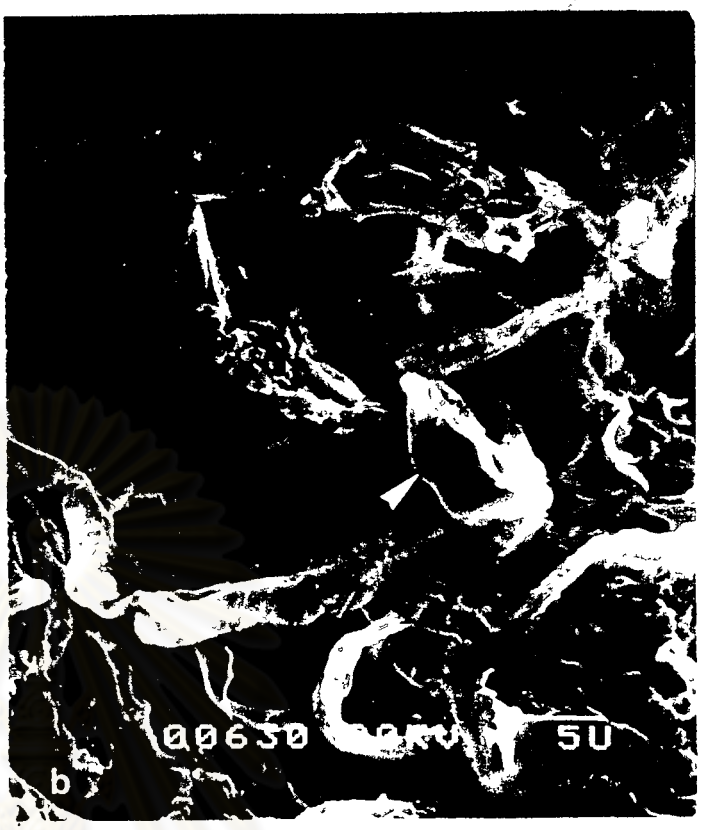


Plate 36

Scanning electron micrographs of *A. benhamiae* treated with 200 µg/ml TK at the 7-day incubation

Note the severe damaged mycelium ⇑ in a., amorphous mycelium and deformed mycelium in b., c., d..

a., b., c., d. x 7049

Plate 36

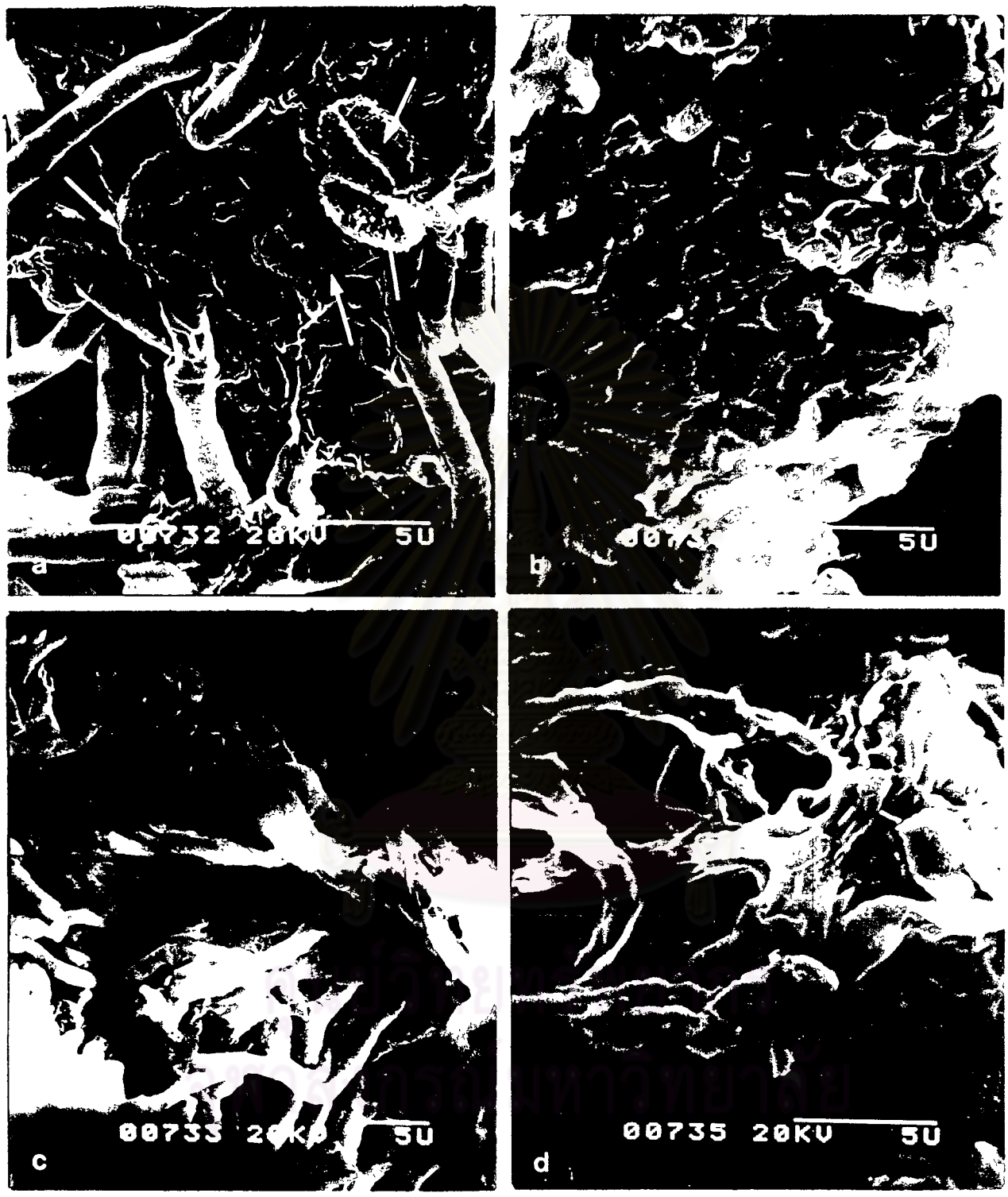


Plate 37

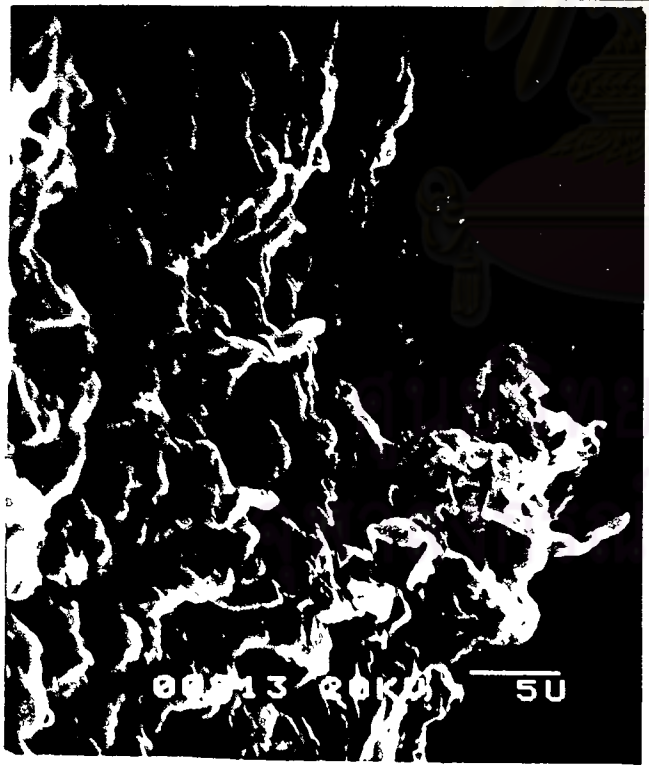
Scanning electron micrographs of *A. benhamiae* treated with 1,000 µg/ml TK at the 7-day incubation

Note the shrink and distorted necrotic mycelium.

a., b. x 3325

c. x 7049

Plate 37



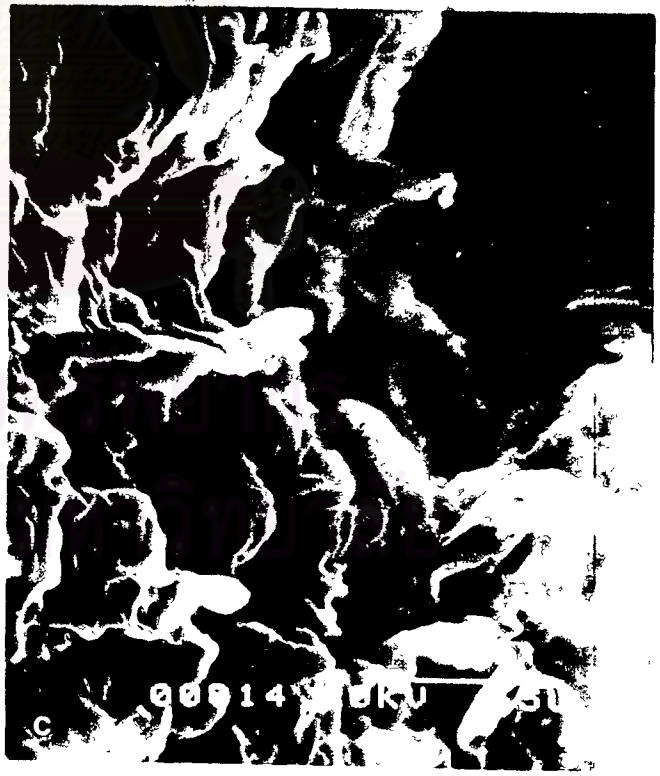


Plate 38

Scanning electron micrographs of *A. benhamiae* :

Control at the 7-day incubation

Note the regular shape mycelium.

Plate 38

Plate 39

Transmission electron micrographs of *Candida albicans* : Control at the 0-hour incubation

Nu = Nucleus

Nc = Nucleolus

Nm = Nuclear membrane

CW = Cell wall

Cm = Cell membrane or Plasmalemma

Ms = Mesosome

Er = Endoplasmic reticulum

r = Ribosome

V = Vacuole

Gi = Golgi apparatus

Cmc = Convoluted cell membrane

a. x 26600

b. x 39900

c. x 66500

Plate 39

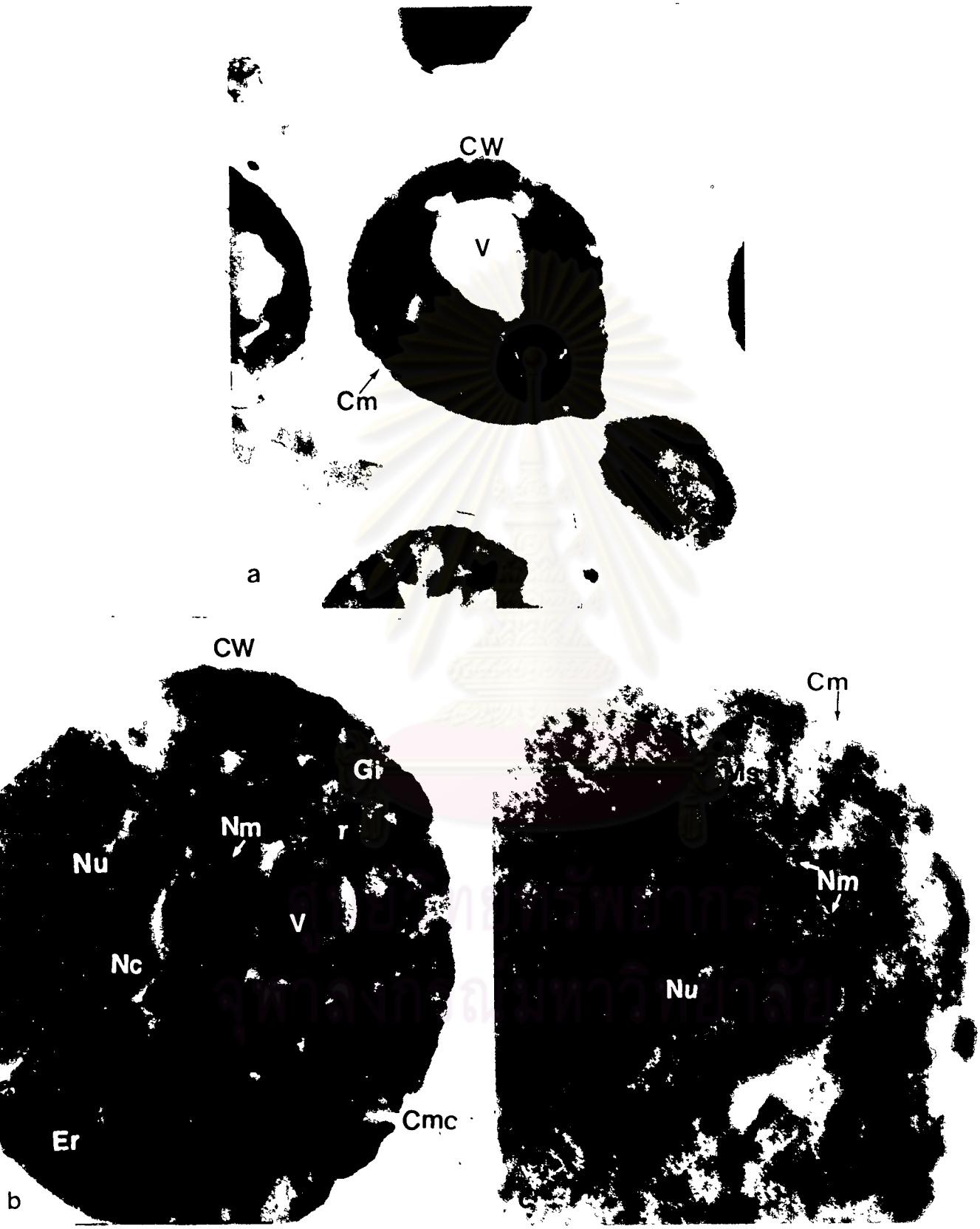


Plate 40

Transmission electron micrographs of *C. albicans* treated with 200 µg/ml TK at the 4-hour incubation

Note the plasmolysis of the cells with lipid bodies (LB) and dilated membrane fragments (mf) in the necrotic cells. The intracytoplasmic organelles and cell membrane cannot be identified. The cell wall shows deformity ↑ (a.). There are cellular content (ct) outside of the cells.

a. x 26600

b. x 39900

c. x 53200

Plate 40

Plate 41

Transmission electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 4-hour incubation

Note the dark bands (↑) in the deformed cell wall with focal thicknings (↑) and complete lost of cell membrane. Nucleus is present in b but other organelles cannot be identified. There are various degrees of plasmolysis in the cells. Lipid body (LB) is also present.

a. x 6650

b. x 19950

c. x 26600

Plate 41

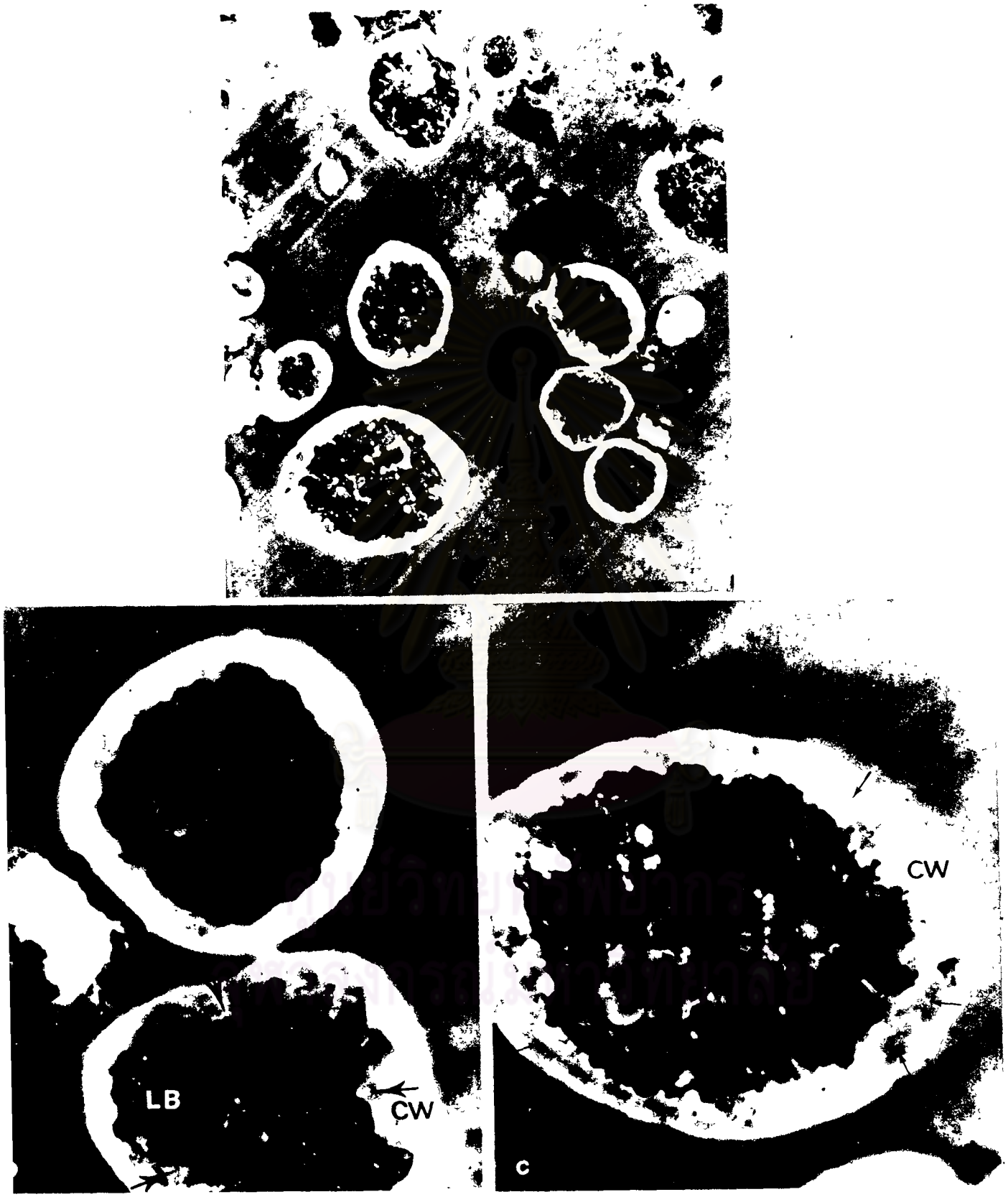


Plate 42

Transmission electron micrographs of *C. albicans* treated with 200 μg/ml TK at the 8-hour incubation,

a. tangential section shows loose cytoplasmic content, cell membrane is absent (x 101950)

b. a thin wall blastoconidia with the wrinkle of cell membrane (Cm) and loose cytoplasmic content (x 19950).

Plate 42

Plate 43

Transmission electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 8-hour incubation

Note the distorted necrotic blastoconidia with dark bands in the deformed cell wall (a., b.),

c. A breaking blastoconidia with various stages of cell wall damage,

 dark band in cell wall (seems like separated cell wall layers)

 outer layer of cell wall is breaking

 complete broken cell wall with cellular content liberation.

a. x 9310

b. x 17290

c. x 53200

Plate 43

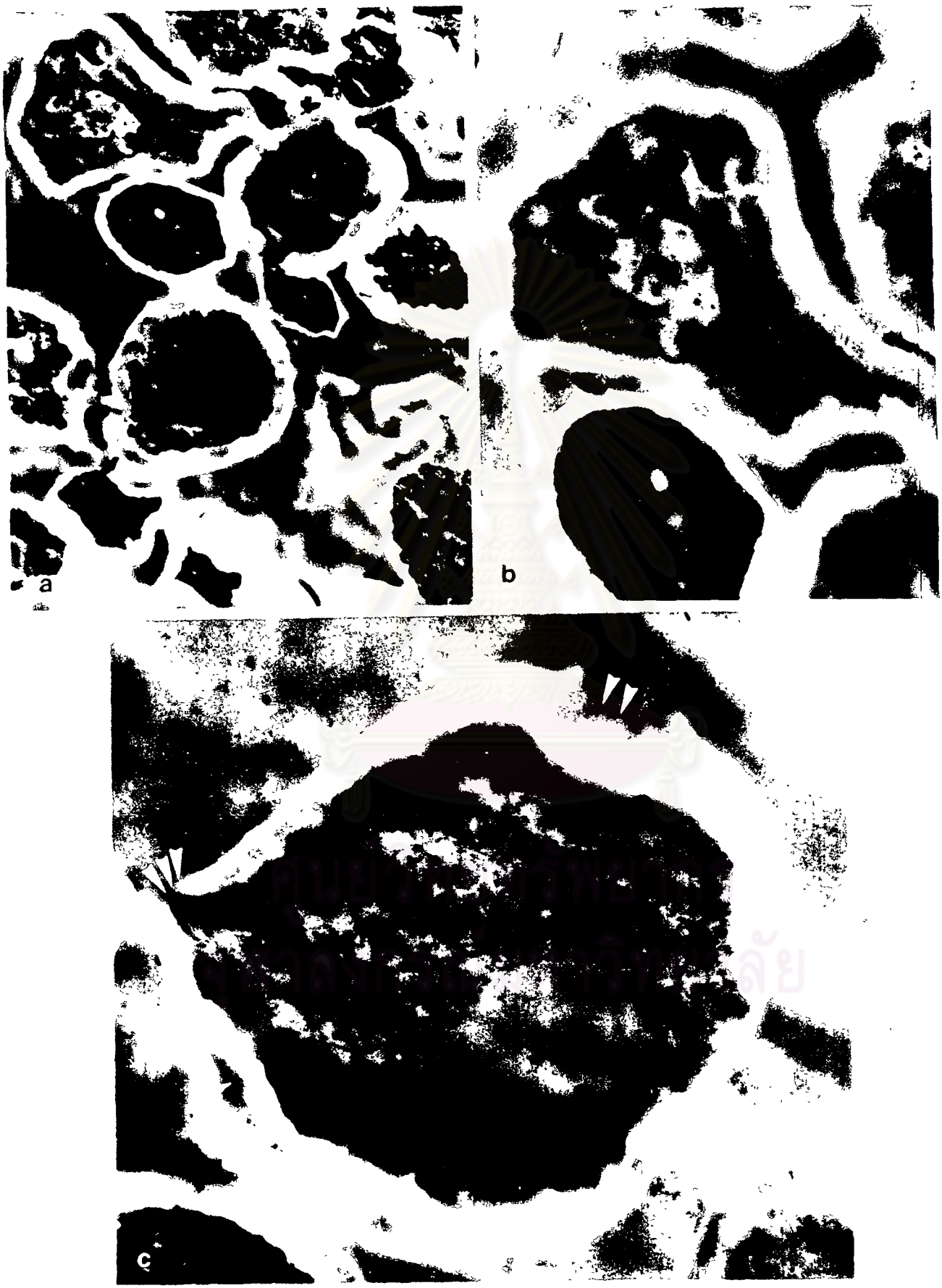


Plate 44

Transmission electron micrographs of *C. albicans* treated with 200 µg/ml TK at the 24-hour incubation

Note the severe damaged necrotic blastoconidia, the cytoplasmic content is nearly absent ↑ from the cells but it is present outside (ct). There are dark bands in the deformed cell wall ↑ .

a. x 9310

b. x 20482

c. x 16510

Plate 44

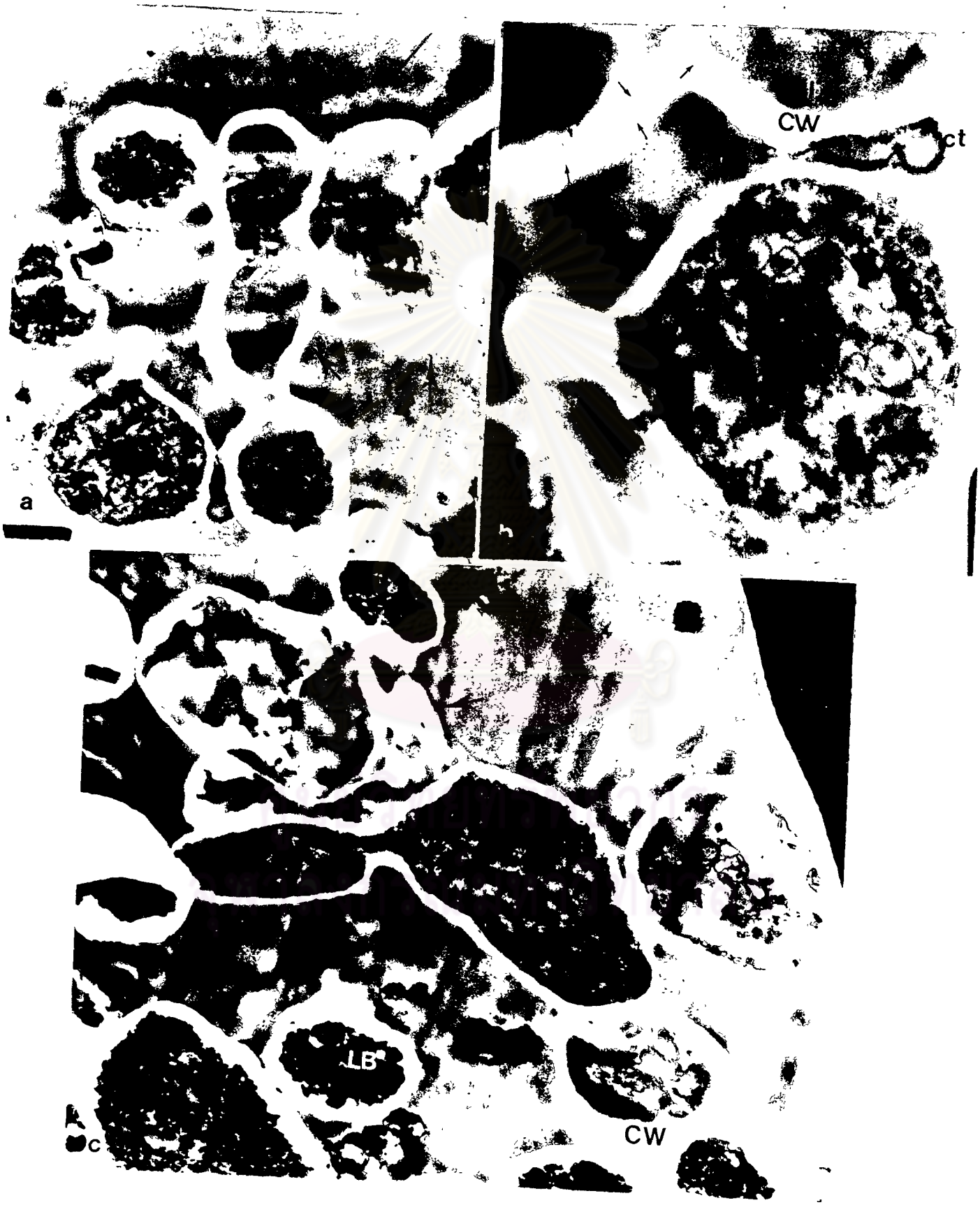


Plate 45

Transmission electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 24-hour incubation

Note the wrinkle of cell membrane ↑ and complete plasmolysis. Lipid bodies (LB) are present in the deformed necrotic blastoconidia.

a. x 26600

b. x 53200

Plate 45

Plate 46

Transmission electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 24-hour incubation

Note the irregular shaped necrotic blastoconidia without cell membrane. There is broken cell wall (↑) in the necrotic cell (c.). Cellular content (ct) is observed outside of the cells.

a. x 26600

b. x 66500

c. x 19950

d. x 53200

Plate 46

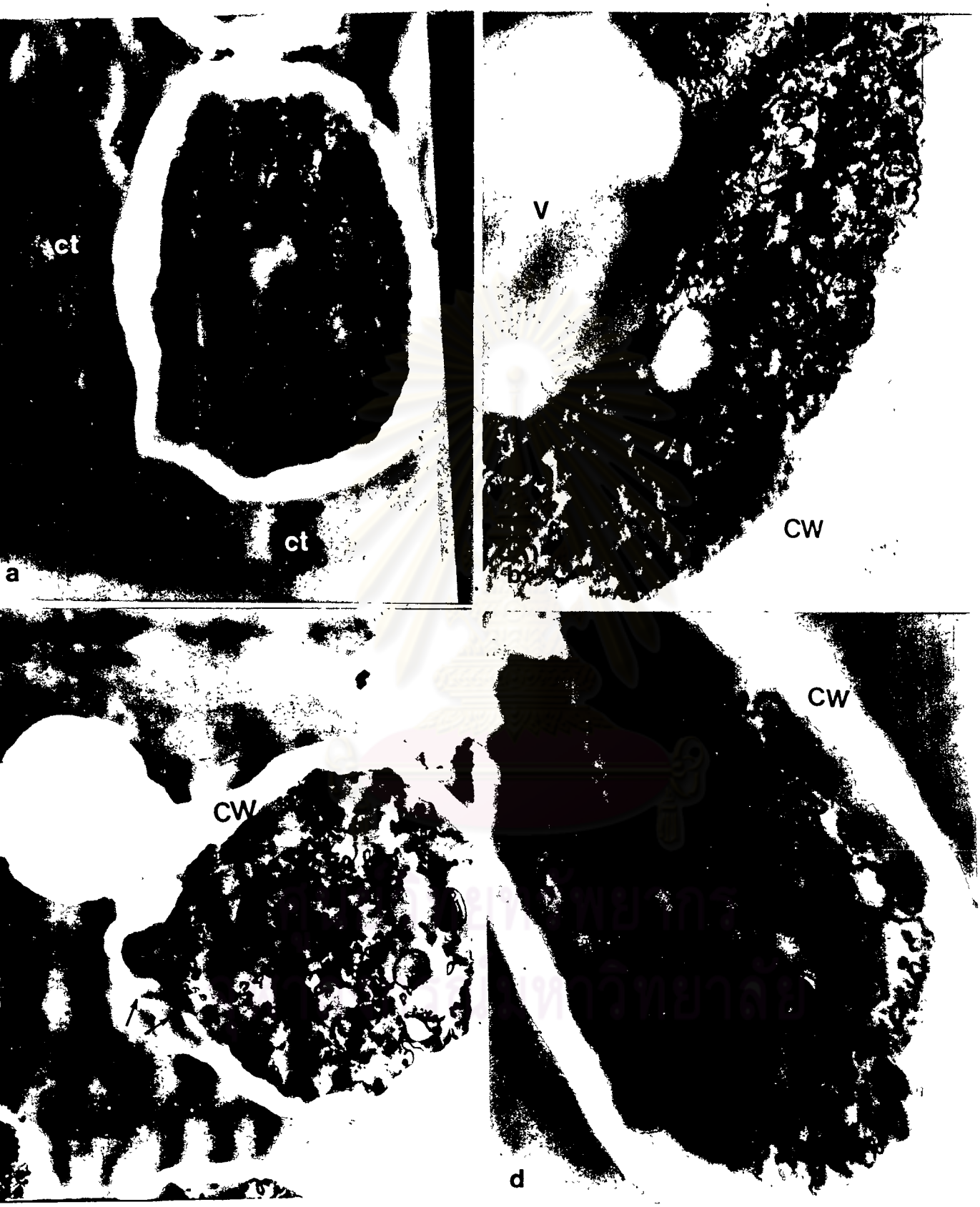


Plate 47

Transmission electron micrographs of *C. albicans* treated with 1,000 µg/ml TK at the 24-hour incubation

Note the irregular shaped-necrotic blastoconidia with complete plasmolysis. The cell walls are varied in thickness with dark inclusions inside. Necrotic cells with broken cell wall (↑) are shown in c. and d..

a. x 19950

b. x 39900

c., d. x 26600

Plate 47

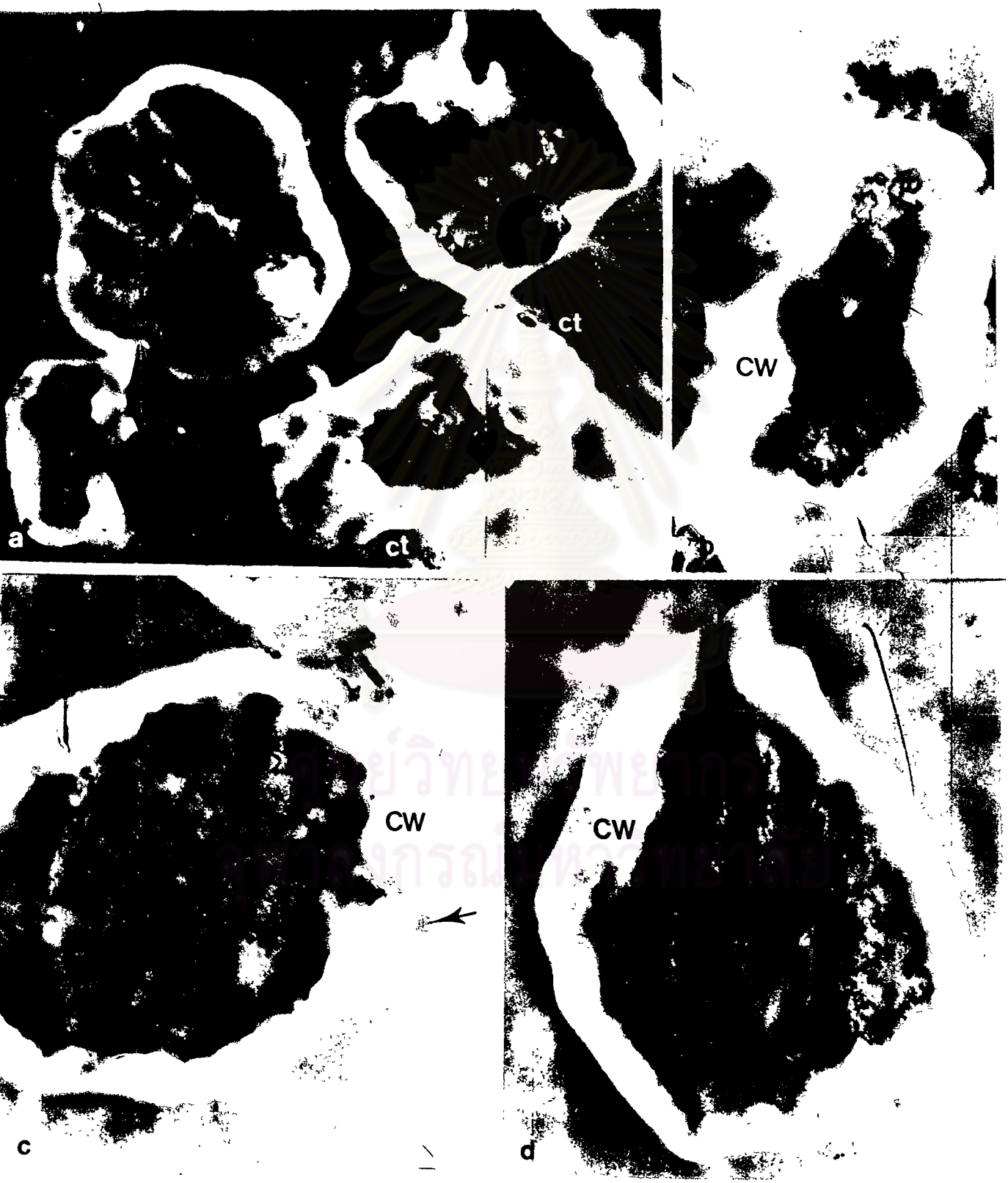


Plate 48

Transmission electron micrographs of *C. albicans* : Control at the 24-hour incubation

Note the regular shaped-blastoconidia with dense cytoplasmic content (x 53200).

Plate 48

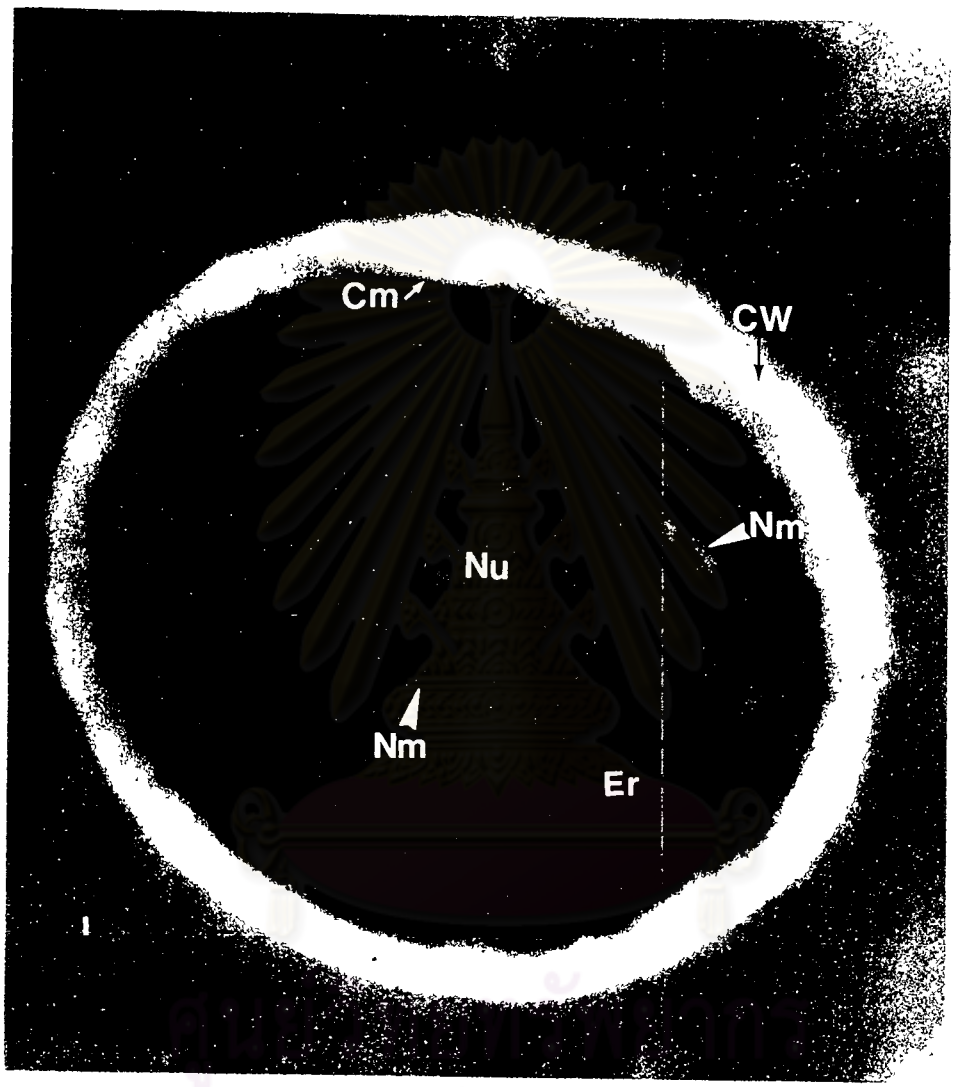


Plate 49

Transmission electron micrographs of *Arthroderma benhamiae* : Control at the 0-day of incubation

Nu = Nucleus

CW = Cell wall

Cm = Cell membrane or Plasmalemma

Mi = Mitochondria

V = Vacuole

Er = Endoplasmic reticulum

S = Septum

r = Ribosome

Mx = Membrane complex

a. x 13300

b. x 15065

c. x 6550

d. x 14790

Plate 49

Plate 50

Transmission electron micrographs of *A. benhamiae* treated with 200 µg/ml TK at the 1-day incubation

Note the deformation of cell membrane (↑) and destruction of cytoplasmic organelles (b., c.) and there are lipid bodies (LB) present in the loose cytoplasm (c.).

a. x 13300

b. x 46360

c. x 26600

Plate 50

Plate 51

Transmission electron micrographs of *A. benhamiae* treated with 1,000 µg/ml TK at the 1-day incubation

Note various degrees of damaged hypha,

a. cross dection of hypha with loose cytoplasmic content, dilated membrane fragments (mf) and lipid bodies (LB),

b. cross section of hypha. Cellular content (ct) is observed outside of the necrotic hypha.

a. x 2660

b. x 19950

Plate 51

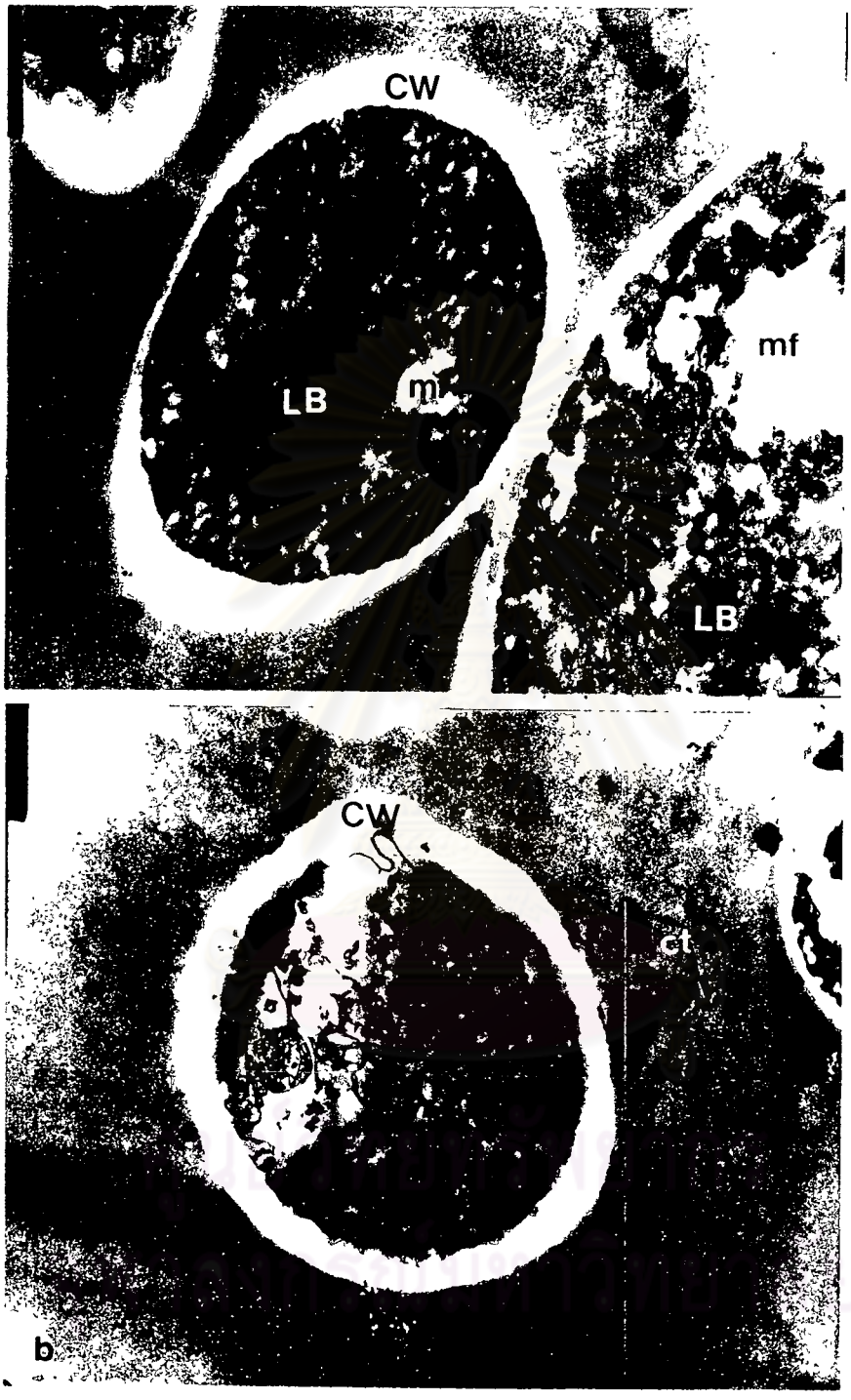


Plate 52

Transmission electron micrograph of *A. benhamiae* treated with 200 µg/ml TK at the 3-day incubation

Note various degrees of mycelial damage, some get absolute necrosis with nearly absent cytoplasmic content (nc), some get slightly damage (sl) with dilated membrane fragments, and some seem to be unchanged. The cell wall is rougher than control. Cellular content (ct) was observed outside of the hypha (x 9545).

Plate 52

Plate 53

Transmission electron micrographs of *A. benhamiae* treated with 1,000 µg/ml TK at the 3-day incubation

Note absolute necrotic hypha with nearly absent of cytoplasmic content. Lipid bodies were (LB) were observed.

a. x 13300

b. x 26600

Plate 53

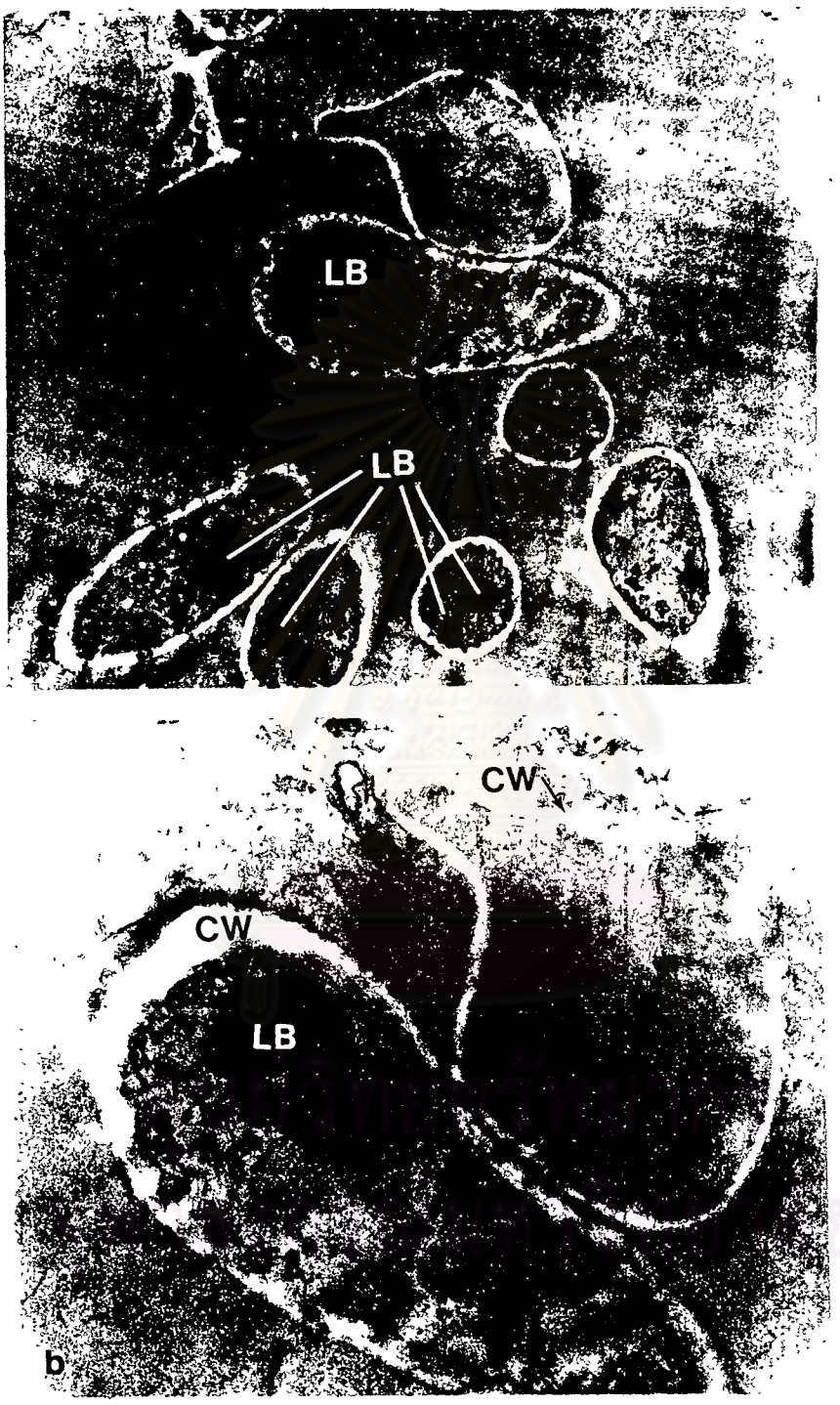


Plate 54

Transmission electron micrographs of *A. benhamiae* treated with 200 µg/ml TK at the 7-day incubation

Note the short, distorted necrotic hypha with nearly absent of cytoplasmic content, lipid bodies (LB), and various thickness deformed cell wall. The cytoplasmic content (ct) is observed outside of the hypha.

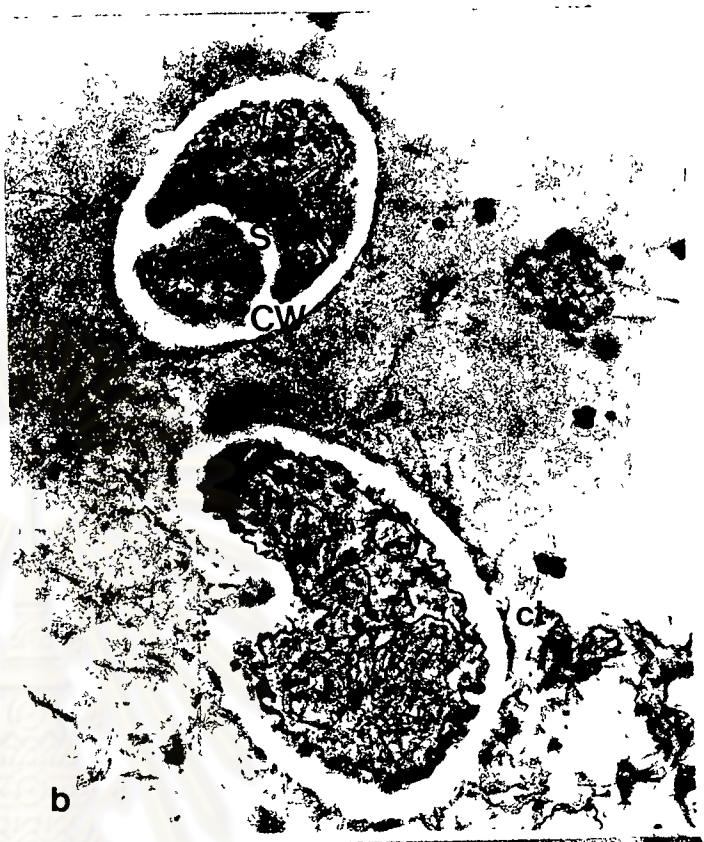
a. x 9310

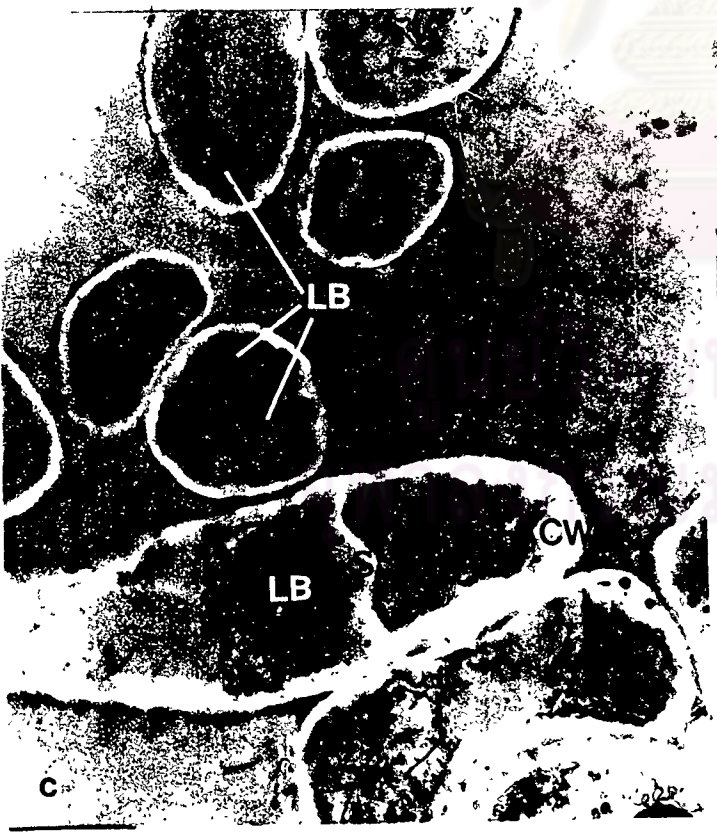
b. x 19551

c. x 13300

d. x 19950

Plate 54





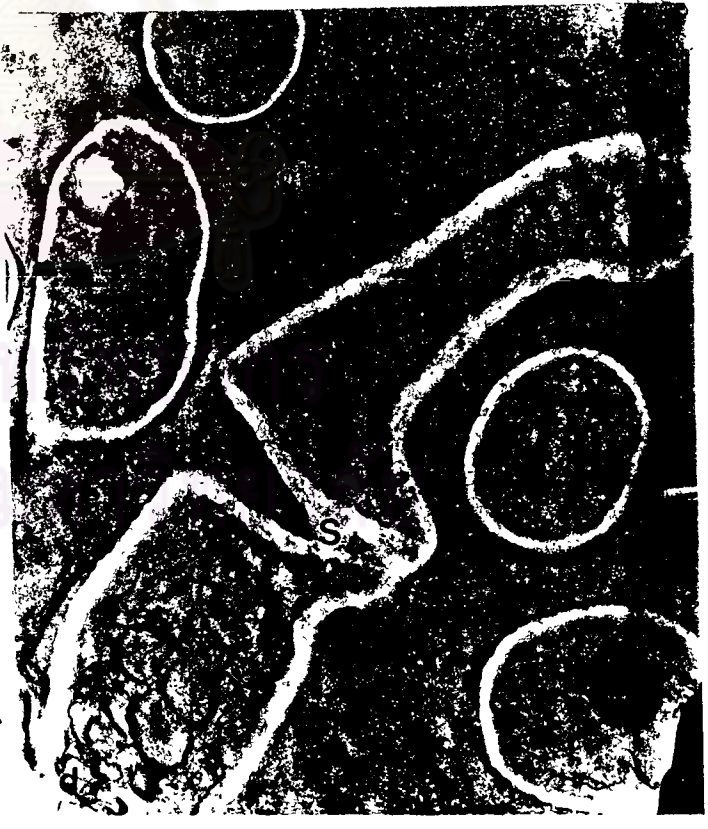


Plate 55

Transmission electron micrographs of *A. benhamiae* treated with 1,000 µg/ml TK at the 7-day incubation

Note the distortion of the necrotic mycelium, nearly absent of cytoplasmic content with large lipid body (LB), cell wall fragments (CWf) and deformed septum (S). The Cytoplasmic membrane fragments were shown in a. and b..

a. x 13300

b., c. x 19950

Plate 55

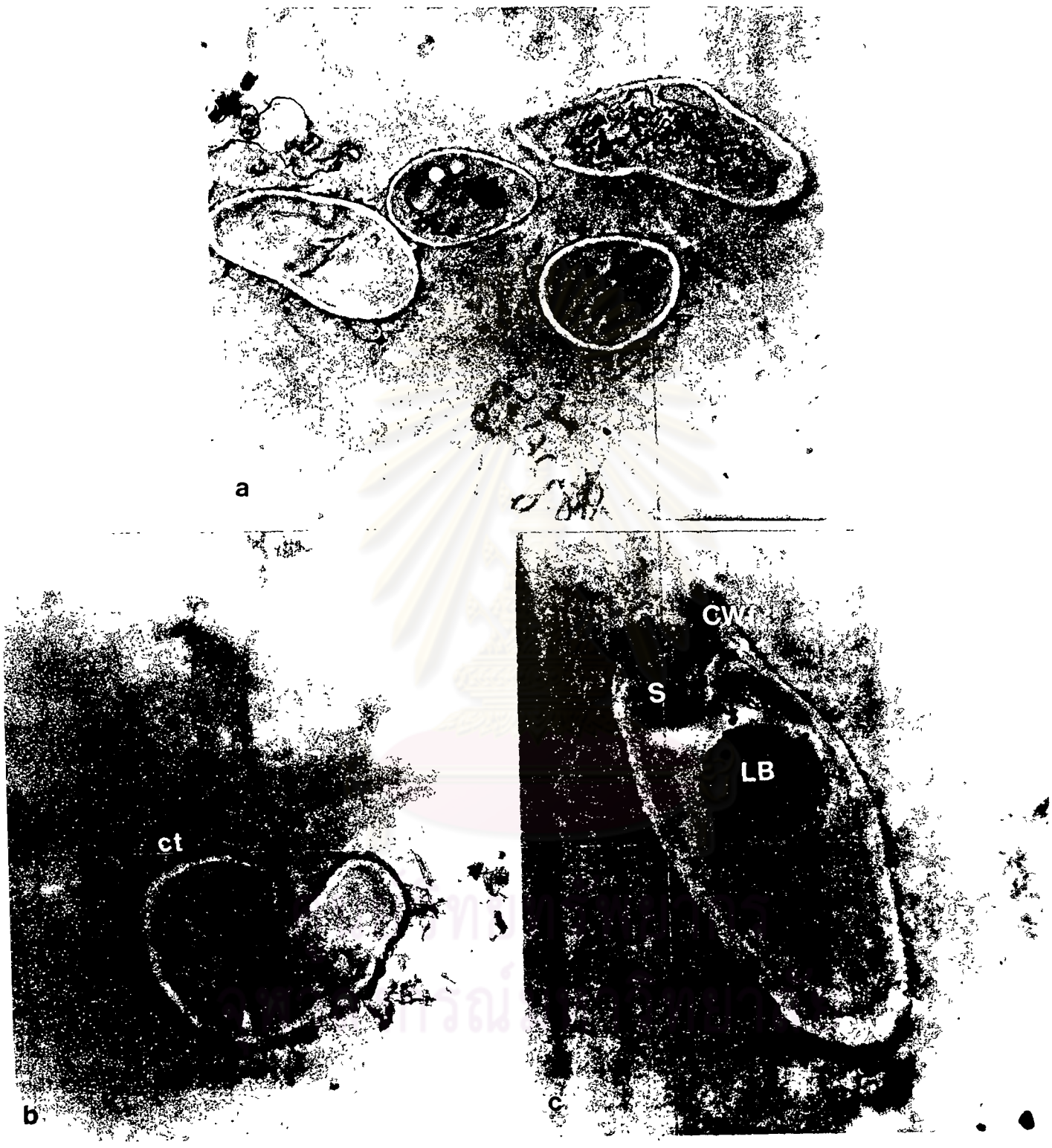


Plate 56

Transmission electron micrographs of *A. benhamiae* : Control at the 7-day incubation

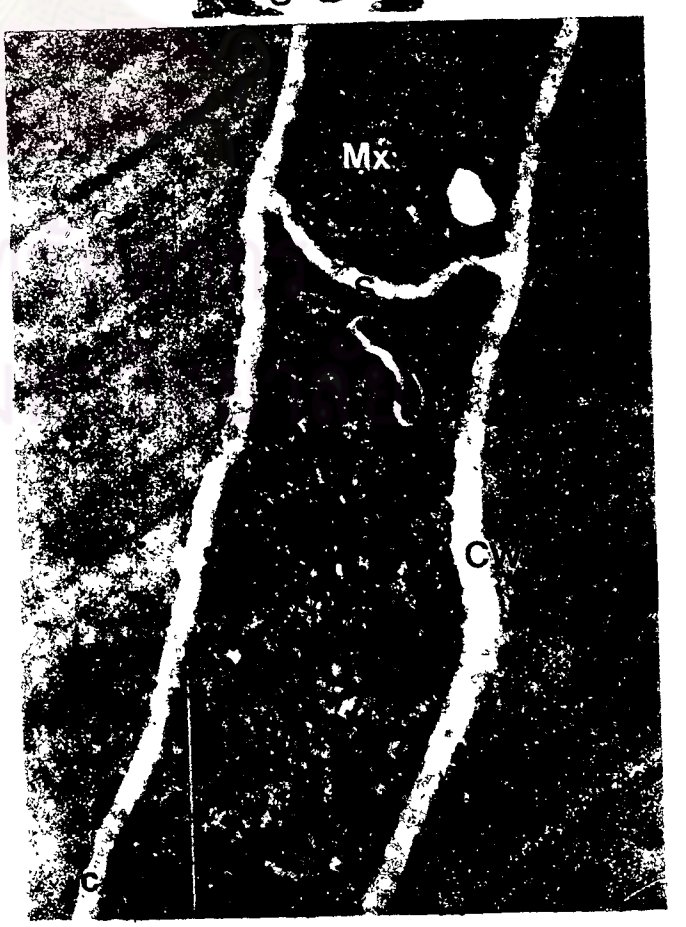
Note the regular shape hypha with well defined cytoplasmic organelles.

a. x 9310

b. x 16355

c. x 16355

Plate 56



BIOGRAPHY

Mrs. Rochaporn Wacharothayankura was born on the 4th of August, 1958 at Surathanee Province, graduated with Bachlor of Sciences (in Pharmacy) from Faculty of Pharmacy, Mahidol University in 1981.