ANDAMENTO DELLA MICROFLORA PRESENTE NEI CAMPIONI IN ESAME NEI DIVERSI TEMPI DI PRODUZIONE

	TEMPO 0	TEMPO 5	TEMPO 15	TEMPO 30
PCA	$8,7\ 10^3$	$1,49\ 10^7$	$1,52\ 10^8$	$8,95\ 10^7$
MRS pH 5,5	$2\ 10^2$	$9,3\ 10^6$	$1,21\ 10^8$	$4,7\ 10^7$
BPM	$4,2\ 10^3$	$1,1\ 10^4$	$1,945\ 10^6$	$8,4\ 10^7$
BPM+EYTE	$2,1\ 10^3$	$9\ 10^3$	$1,66\ 10^6$	$1,C\ 10^8$
MEA	$4,7\ 10^3$	$1,205\ 10^7$	$5,6\ 10^7$	$4\ 10^6$
VRBA *Coliformi totali* *Colifirmi fecali*	 40 assenti	 $3,15\ 10^2$ assenti	 60 assenti	 assenti assenti
SBM	$2\ 10^2$	$7,15\ 10^4$	$4,787\ 10^5$	$1,15\ 10^6$
Salmonella	assente	assente	assente	

Legenda

PCA : Carica microbica totale *mesofila*
MRS pH 5,C : Batteri lattici
BPM : Micrococcacee
BPM+EYTE : Staphylococcus aureus
MEA : Muffe e lieviti
VRBA : Enterobatteriacee
SBM : Enterococchi

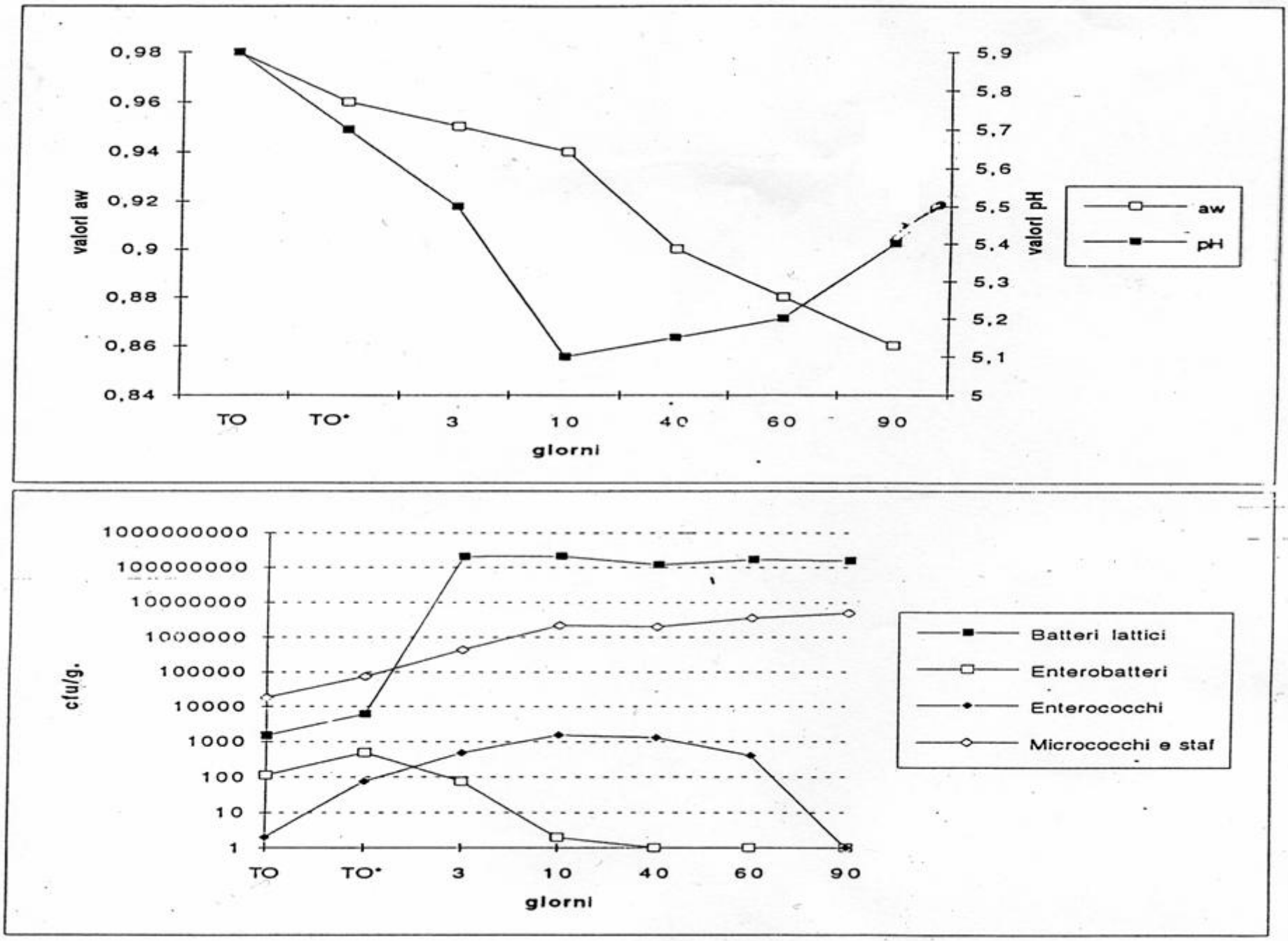


Fig. 5 Andamento dei gruppi batterici, del pH e di aw nella produzione e maturazione del salame

Partita di salame non inoculato

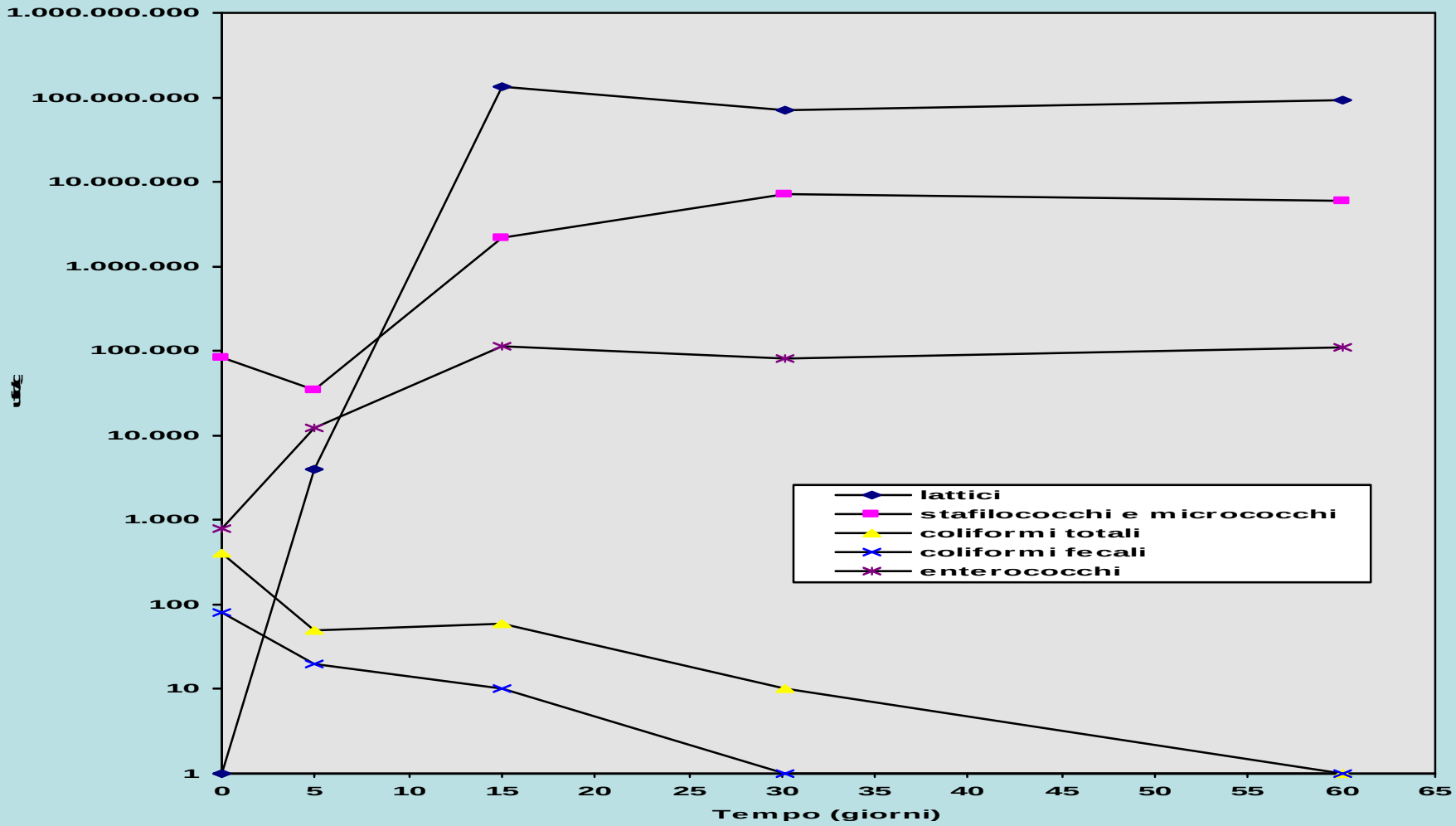


Fig. 4 - Barriere attive nella produzione del salame

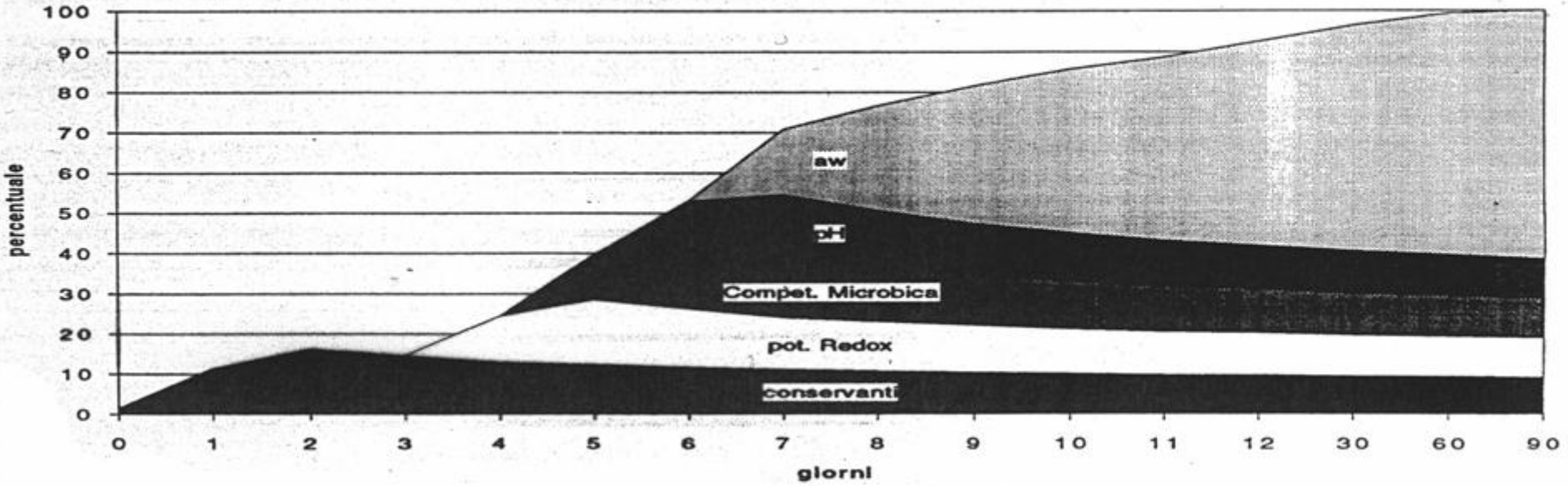
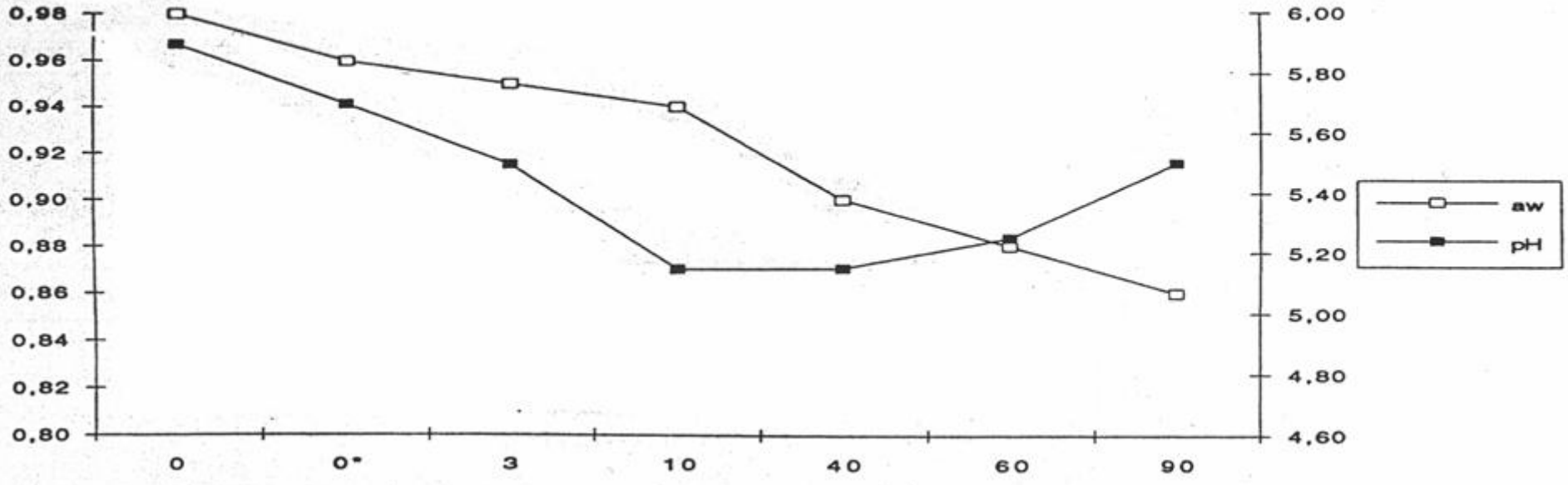
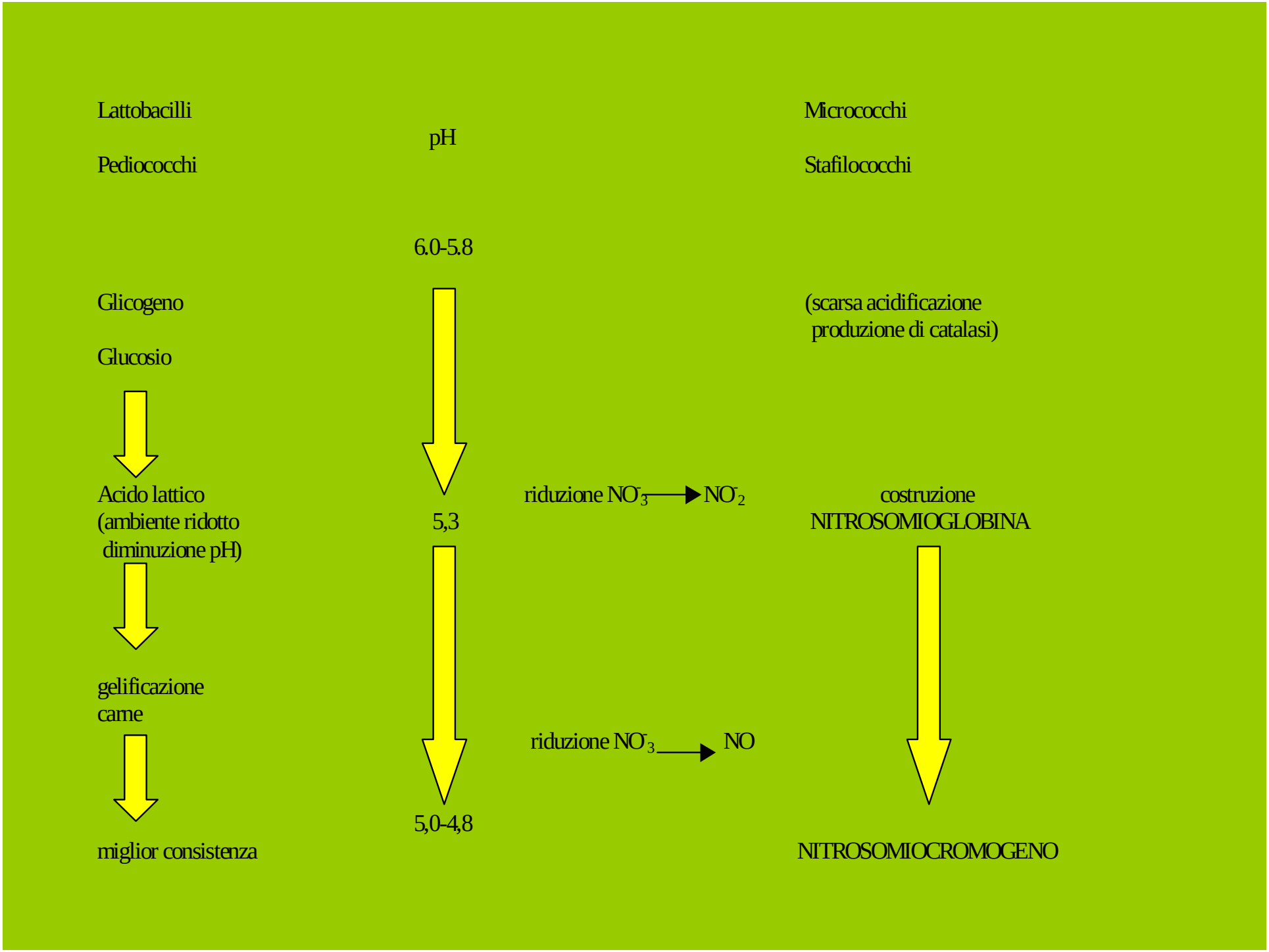


Fig. 5 - Andamento del pH e di Aw nella produzione e maturazione del salame




Lattobacilli
Pediococchi
pH
Micrococchi
Stafilococchi
6.0-5.8
Glicogeno
Glucosio
(scarsa acidificazione
produzione di catalasi)
Acido lattico
(ambiente ridotto
diminuzione pH)
riduzione NO-3 NO-2
5,3
costruzione
NITROSOMIOGLOBINA
gelificazione
carne
riduzione NO-3 NO
5,0-4,8
miglior consistenza
NITROSOMIOCROMOGENO

		Microrcanismi coinvolti	
Caratteristiche qualitative	Modalità d'azione	Batteri lattici	Micrococcaceae
Colore	Riduzione nitrati	-	+++
	Abbassamento pH	+++	-
	Consumo di O_2 nell'impasto	-	++
	Inattivazione di H_2O_2	-	++
Aroma	Produzione di acidi	+++	-
	Azione proteolitica	-	+
	Azione lipolitica	-	++
	Contenimento dell'irrancidimento	-	++
Consistenza	Riduzione del pH	+++	-
Conservazione	Riduzione del pH	+++	-
	Riduzione dei nitrati	-	++
	Soppressione dei microrganismi indesiderati	++	-
Caratteristiche della fetta	Aspetto	-	-
	Protezione dalla disidratazione	-	-
	Protezione da O_2 e luce	-	-
Basso contenuto di residui	Inattivazione dei nitrati	+	++
	Prevenzione della produzione di micotossine	-	-

Parametri che influenzano il livello di acidità

- Q.tà e tipo di zuccheri aggiunti agli impasti.
- Temperature applicate all’asciugatura: quelle più elevate stimolano lo sviluppo dei batteri lattici.
- Scelta di specie e ceppi in relazione alla rapidità e intensità dell’acidificazione.

Risultati caratterizzazione “API 50”

Tempo	Sigla isolato	Identificazione Api 50CL
Carne	1Pcl1	*Lactobacillus sp.*
	1Pcl2	*Lactobacillus plantarum*
	1Pcl3	*Lactobacillus sakei*
	1Pcl4	*Lactobacillus sp.*
	1Pcl5	*Lactobacillus sp.*
	1Pcl6	*Lactobacillus plantarum*
	1Pcl7	*Lactobacillus sp*
	2Pcl1	*Lactobacillus sp.*
	2Pcl2	*Lactobacillus sakei*
	2Pcl3	*Lactobacillus sp.*
	2Pcl4	*Lactobacillus sp.*
	2Pcl5	*Lactobacillus curvatus*
	2Pcl6	*Lactobacillus curvatus*
	2Pcl7	*Lactobacillus sp.*
	3Pcl1	*Lactobacillus sp.*
	3Pcl2	*Lactobacillus sp.*
	3Pcl3	*Lactobacillus* sp.
	3Pcl4	*Lactobacillus plantarum*
	3Pcl5	*Lactobacillus sakei*
	3Pcl6	*Lactobacillus sakei*
	3Pcl7	*Lactobacillus curvatus*

7 gg.	1Pcl8	*Lactobacillus sakei*
	1Pcl9	*Lactobacillus curvatus*
	1Pcl10	*Lactobacillus curvatus*
	1Pcl11	*Lactobacillus sakei*
	1Pcl12	*Lactobacillus plantarum*
	1Pcl13	*Lactobacillus curvatus*
	1Pcl14	*Lactobacillus sakei*
	2Pcl8	*Lactobacillus sakei*
	2Pcl9	*Lactobacillus sp.*
	2Pcl10	*Lactobacillus plantarum*
	2Pcl11	*Lactobacillus sakei*
	2Pcl12	*Lactobacillus sakei*
	2Pcl13	*Lactobacillus sakei*
	2Pcl14	*Lactobacillus curvatus*
	3Pcl8	*Lactobacillus plantarum*
	3Pcl9	*Lactobacillus sakei*
	3Pcl10	*Lactobacillus curvatus*
	3Pcl11	*Lactobacillus sp.*
	3Pcl12	*Lactobacillus curvatus*
	3Pcl13	*Lactobacillus curvatus*
	3Pcl14	*Lactobacillus sakei*

Circa	1Pcl15	*Lactobacillus sakei*
30gg	1Pcl16	*Lactobacillus sp.*
	1Pcl17	*Lactobacillus curvatus*
	1Pcl18	*Lactobacillus sakei*
	1Pcl19	*Lactobacillus curvatus*
	1Pcl20	*Lactobacillus sakei*
	1Pcl21	*Lactobacillus sakei*
	2Pcl15	*Lactobacillus curvatus*
	2Pcl16	*Lactobacillus sakei*
	2Pcl17	*Lactobacillus sakei*
	2Pcl18	*Lactobacillus curvatus*
	2Pcl19	*Lactobacillus curvatus*
	2Pcl20	*Lactobacillus curvatus*
	2Pcl21	*Lactobacillus plantarum*
	3Pcl15	*Lactobacillus sakei*
	3Pcl16	*Lactobacillus sakei*
	3Pcl17	*Lactobacillus sakei*
	3Pcl18	*Lactobacillus sakei*
	3Pcl19	*Lactobacillus sakei*
	3Pcl20	*Lactobacillus curvatus*
	3Pcl21	*Lactobacillus curvatus*

Fine	1Pcl22	*Lactobacillus plantarum*
stagionatura	1Pcl23	*Lactobacillus sakei*
	1Pcl24	*Lactobacillus sp.*
	1Pcl25	*Lactobacillus curvatus*
	1Pcl26	*Lactobacillus sp.*
	1Pcl27	*Lactobacillus curvatus*
	1Pcl28	*Lactobacillus curvatus*
	2Pcl22	*Lactobacillus sakei*
	2Pcl23	*Lactobacillus sakei*
	2Pcl24	*Lactobacillus sakei*
	2Pcl25	*Lactobacillus sakei*
	2Pcl26	*Lactobacillus sakei*
	2Pcl27	*Lactobacillus plantarum*
	2Pcl28	*Lactobacillus curvatus*
	3Pcl22	*Lactobacillus sakei*
	3Pcl23	*Lactobacillus curvatus*
	3Pcl24	*Lactobacillus curvatus*
	3Pcl25	*Lactobacillus sakei*
	3Pcl26	*Lactobacillus sp.*
	3Pcl27	*Lactobacillus curvatus*
	3Pcl28	*Lactobacillus sakei*

Caratterizzazione mediante metodo “API-STAPH”

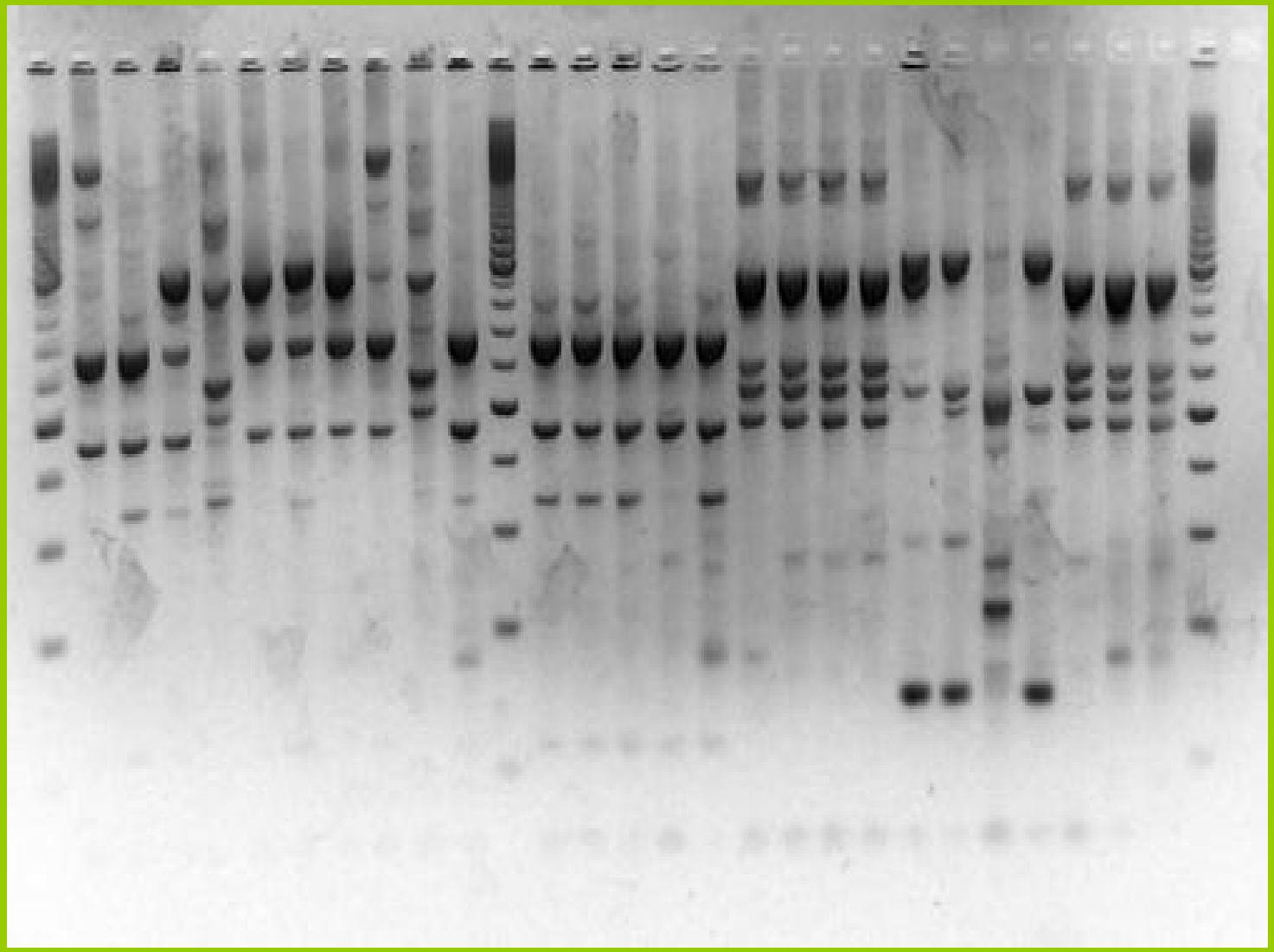
Tempo	Sigla isolato	Identificazione Api Staph
Carne	1Pc1	6326050 *St. sciuri* 98.5% id. buona
	1Pc2	6333512 *St. xylosus* 99.9% id. ottima
	1Pc3	6333512 *St. xylosus* 99.9% id. ottima
	1Pc4	6336130 *St. sciuri* 97.0% id. buona
	1Pc5	6634152 *St. saprophyticus* 99.1% id. buona
	1Pc6	6336113 *St. warneri* 44.7% id. bassa
	1Pc7	6712150 *St. lugdunensis* 98.1% id. buona
	1Pc8	6616112 *St. hominis* 83,4% id. accettabile
	2Pc1	6336113 *St. warneri* 44.7% id. bassa
	2Pc2	6616112 St. *hominis* 83,4% id. accettabile
	2Pc3	6332113 *St. warneri* 89.0% id. bassa
	2Pc4	6106103 *St. caprae* 90.9% id. bassa
	2Pc5	6712150 *St. lugdunensis* 98.1% id. buona
	2Pc6	6636112 *St. saprophyticus* 46.6% id. bassa
	2Pc7	6106103 *St. caprae* 90.9% id. bassa
	2Pc8	6336113 *St. warneri* 44.7% id. bassa
	3Pc1	6316113 *St. hominis* 46.4% id. bassa
	3Pc2	6634152 *St. saprophyticus* 99.1% id. buona
	3Pc3	6712152 *St. lugdunensis* 94.2% id. bassa
	3Pc4	6116102 *St. caprae* 98.0% id. buona
	3Pc5	6712150 *St. lugdunensis* 98.1% id. buona
	3Pc6	6332013 *St. warneri* 68.9% id. bassa
	3Pc7	6616112 *St. hominis* 83,4% id. accettabile
	3Pc8	6634152 *St. saprophyticus* 99.1% id. buona

7 gg.	1Pc9	6336552 *St. xylosus* 99.7% id. ottima
	1Pc10	6736553 *St. xylosus* 88.5% id. accettabile
	1Pc11	6336552 *St. xylosus* 99.7% id. ottima
	1Pc12	6736050 *St. sciuri* 96.9% id. buona
	1Pc13	6736050 *St. sciuri* 96.9% id. buona
	1Pc14	6634152 *St. saprophyticus* 99.1% id. buona
	1Pc15	6736553 *St. xylosus* 88.5% id. accettabile
	1Pc16	6634152 *St. saprophyticus* 99.1% id. buona
	2Pc9	6336552 *St. xylosus 99.7%* id. ottima
	2Pc10	6212132 *St. hominis 98.7 %* id. buona
	2Pc11	6336552 *St. xylosus* 99.7% id. ottima
	2Pc12	6332113 *St. warneri* 89.0% id. bassa
	2Pc13	6336552 *St. xylosus* 99.7% id. ottima
	2Pc14	6332113 *St. warneri* 89.0% id. bassa
	2Pc15	6706110 *St. epidermidis* 94.3% id. buona
	2Pc16	6336150 *St. sciuri* 87.9% id. bassa
	3Pc9	6706110 *St. epidermidis* 94.3% id. buona
	3Pc10	6736550 *St. sciuri* 59.2% id. bassa
	3Pc11	6336552 *St. xylosus* 99.7% id. ottima
	3Pc12	6336150 *St. sciuri* 87.9% id. bassa
	3Pc13	6336150 *St. sciuri* 87.9% id. bassa
	3Pc14	6336552 *St. xylosus* 99.7% id. ottima
	3Pc15	6634152 *St. saprophyticus* 99.1% id. buona
	3Pc16	6736050 *St. sciuri* 96.9% id. buona

Circa	1Pc17	6336552 *St. xylosus* 99.7% id. ottima
30gg	1Pc18	6336552 *St. xylosus* 99.7% id. ottima
	1Pc19	6336552 *St. xylosus* 99.7% id. ottima
	1Pc20	6736553 *St. xylosus* 88.5% id. accettabile
	1Pc21	6736553 *St. xylosus* 88.5% id. accettabile
	1Pc22	6336552 *St. xylosus* 99.7% id. ottima
	1Pc23	6336150 *St. sciuri* 87.9% id. bassa
	1Pc24	6736553 *St. xylosus* 88.5% id. accettabile
	2Pc17	6736553 *St. xylosus* 88.5% id. accettabile
	2Pc18	6336150 *St. sciuri* 87.9% id. bassa
	2Pc19	6736553 *St. xylosus* 88.5% id. accettabile
	2Pc20	6634152 *St. saprophyticus* 99.1% id. buona
	2Pc21	6336552 *St. xylosus* 99.7% id. ottima
	2Pc22	6736553 *St. xylosus* 88.5% id. accettabile
	2Pc23	6336150 *St. sciuri* 87.9% id. bassa
	2Pc24	6336150 *St. sciuri* 87.9% id. bassa
	3Pc17	6336552 *St. xylosus* 99.7% id. ottima
	3Pc18	6336150 *St. sciuri* 87.9% id. bassa
	3Pc19	6336552 *St. xylosus* 99.7% id. ottima
	3Pc20	6336552 *St. xylosus* 99.7% id. ottima
	3Pc21	6336552 *St. xylosus* 99.7% id. ottima
	3Pc22	6333512 *St. xylosus* 99.9% id. ottima
	3Pc23	6336150 *St. sciuri* 87.9% id. bassa
	3Pc24	6336552 *St. xylosus* 99.7% id. ottima

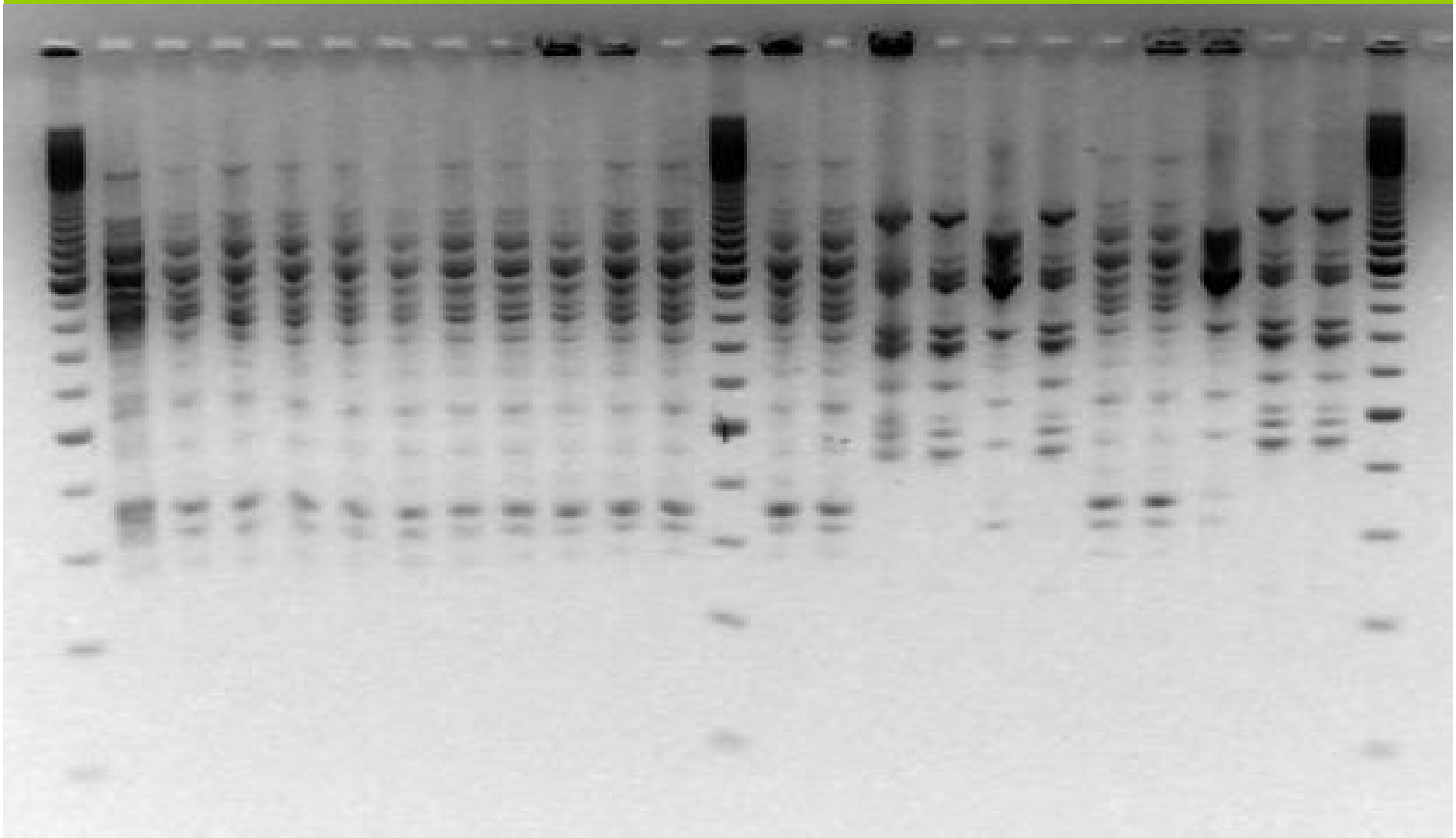
Fine	4Pc25	6336010 *St. sciuri* 99.0% id. buona
Stagionatura	4Pc26	6336552 *St. xylosus* 99.7% id. ottima
	4Pc27	6736553 *St. xylosus* 88.5% id. accettabile
	4Pc28	6336552 *St. xylosus* 99.7% id. ottima
	4Pc29	6336552 *St. xylosus* 99.7% id. ottima
	4Pc30	6336552 *St. xylosus* 99.7% id. ottima
	4Pc31	6336552 *St. xylosus* 99.7% id. ottima
	4Pc32	6336552 *St. xylosus* 99.7% id. ottima
	5Pc25	6736553 *St. xylosus* 88.5% id. accettabile
	5Pc26	6336552 *St. xylosus* 99.7% id. ottima
	5Pc27	6336552 *St. xylosus* 99.7% id. ottima
	5Pc28	6336552 *St. xylosus* 99.7% id. ottima
	5Pc29	6336552 *St. xylosus* 99.7% id. ottima
	5Pc30	6336552 *St. xylosus* 99.7% id. ottima
	5Pc31	6736553 *St. xylosus* 88.5% id. accettabile
	5Pc32	6336552 *St. xylosus* 99.7% id. ottima
	6Pc25	6336552 *St. xylosus* 99.7% id. ottima
	6Pc26	6336552 *St. xylosus* 99.7% id. ottima
	6Pc27	6736553 *St. xylosus* 88.5% id. accettabile
	6Pc28	6336552 *St. xylosus* 99.7% id. ottima
	6Pc29	6336010 *St. sciuri* 99.0% id. buona
	6Pc30	6336552 *St. xylosus* 99.7% id. ottima
	6Pc31	6336552 *St. xylosus* 99.7% id. ottima
	6Pc32	6736553 *St. xylosus* 88.5% id. accettabile

Legenda Fig 1: Profili caratteristici di stafilococchi isolati dalla I serie di semine



1 M100bp
2 1CNE
3 2CNE
4 3CNE
5 4CNE
6 5CNE
7 6CNE
8 7CNE
9 8CNE
10 9CNE
11 10CNE
12 M100bp
13 11CNE
14 12CNE
15 13CNE
16 14CNE
17 15CNE
18 S1Fi
19 S2Fi
20 S3Fi
21 S4Fi
22 S5Fi
23 S6Fi
24 S7Fi
25 S8Fi
26 S9Fi
27 S10Fi
28 S11Fi
29 S12Fi
30 M100bp

Legenda fig.4: Altri profili caratteristici di batteri lattici isolati dalla III serie di semine



Caratteristiche fisiologiche degli stafilococchi isolati

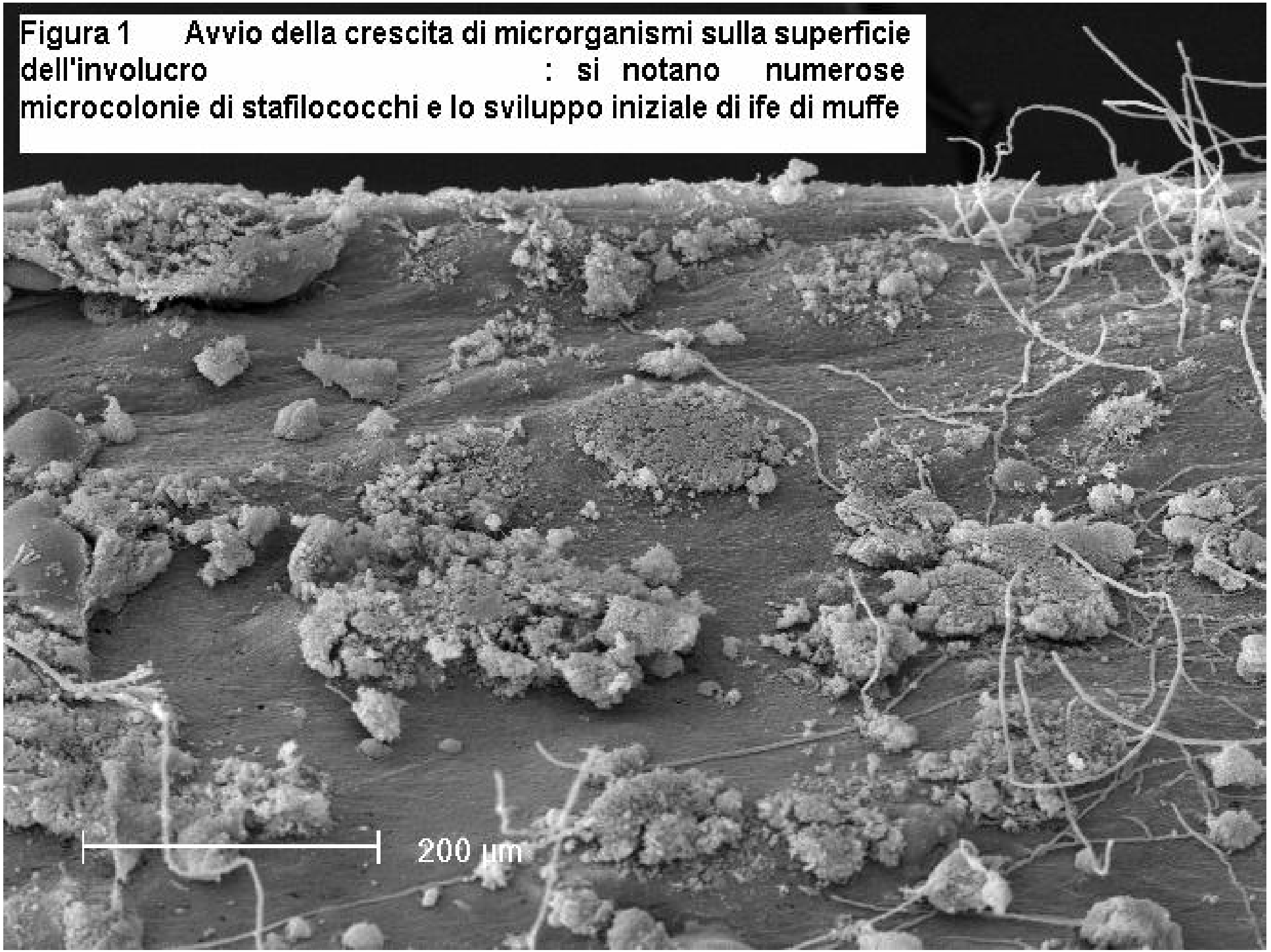
Tempo	Sigla isolato	Attività proteolitica	Attività lipolitica	Riduzione dei nitrati	Sigla isolato	Attività proteolitica	Attività lipolitica	Riduzione dei nitrati
Carne	1Pc1	+++	+/-	50-100 ppm	4Pc1	-	++	0 ppm
	1Pc2	-	++	>100 ppm	4Pc2	-	+++	10-50 ppm
	1Pc3	+/-	+++	50-100 ppm	4Pc3	-	+++	0-10 ppm
	1Pc4	-	+++	10-50 ppm	4Pc4	-	+	10-50 ppm
	1Pc5	+/-	++	10-50 ppm	4Pc5	+	+++	10-50 ppm
	1Pc6	++	+++	0 ppm	4Pc6	-	+++	0-10 ppm
	1Pc7	+++	+++	>100ppm	4Pc7	-	-	10-50 ppm
	1Pc8	-	+++	10-50 ppm	4Pc8	-	+++	50-100 ppm
	2Pc1	-	+++	50-100 ppm	5Pc1	-	+++	10-50 ppm
	2Pc2	+/-	+++	0-10 ppm	5Pc2	-	++	50-100 ppm
	2Pc3	+	+++	50-100 ppm	5Pc3	-	+++	10-50 ppm
	2Pc4	-	+++	10-50 ppm	5Pc4	-	+++	50-100 ppm
	2Pc5	-	+++	10-50 ppm	5Pc5	-	+++	10-50 ppm
	2Pc6	-	+++	10-50 ppm	5Pc6	-	+++	10-50 ppm
	2Pc7	-	+/-	50-100 ppm	5Pc7	-	-	50-100 ppm
	2Pc8	++	+++	10-50 ppm	5Pc8	+	+++	10-50 ppm
	3Pc1	-	++	10-50 ppm	6Pc1	-	+++	10-50 ppm
	3Pc2	-	+++	50-100 ppm	6Pc2	-	++	>100 ppm
	3Pc3	-	+++	>100ppm	6Pc3	-	+++	10-50 ppm
	3Pc4	-	+	10-50 ppm	6Pc4	+/-	+++	50-100 ppm
	3Pc5		+++	10-50 ppm	6Pc5		+++	0 ppm

7 gg.	1Pc9	-	++	0-10 ppm	4Pc9	-	-	>100 ppm
	1Pc10	-	+++	>100ppm	4Pc10	+++	+++	>100 ppm
	1Pc11	++	+++	50-100 ppm	4Pc11	+	++	50-100 ppm
	1Pc12	-	-	0-10 ppm	4Pc12	-	+++	0-10 ppm
	1Pc13	-	+++	50-100 ppm	4Pc13	++	+++	50-100 ppm
	1Pc14	++	+++	0-10 ppm	4Pc14	-	+++	10-50 ppm
	1Pc15	-	+++	>100ppm	4Pc15	-	+	>100 ppm
	1Pc16	-	++	10-50 ppm	4Pc16	+/-	+++	50-100 ppm
	2Pc9	-	+++	10-50 ppm	5Pc9	-	+++	10-50 ppm
	2Pc10	-	+++	0-10 ppm	5Pc10	-	-	0-10 ppm
	2Pc11	-	+++	50-100 ppm	5Pc11	-	+++	10-50 ppm
	2Pc12	-	+++	50-100 ppm	5Pc12	-	++	10-50 ppm
	2Pc13	-	+++	50-100 ppm	5Pc13	-	+++	50-100 ppm
	2Pc14	-	++	10-50 ppm	5Pc14	+	+++	50-100 ppm
	2Pc15	-	-	0-10 ppm	5Pc15	-	+++	0 ppm
	2Pc16	-	+++	0-10 ppm	5Pc16	++	+++	>100 ppm
	3Pc9	-	+++	>100ppm	6Pc9	+++	+++	10-50 ppm
	3Pc10	-	+	10-50 ppm	6Pc10	-	+++	>100 ppm
	3Pc11	-	+++	10-50 ppm	6Pc11	-	+++	10-50 ppm
	3Pc12	-	+++	10-50 ppm	6Pc12	-	+/-	>100 ppm
	3Pc13	++	++	50-100 ppm	6Pc13	+	++	>100 ppm
	3Pc14	-	+++	50-100 ppm	6Pc14	-	+++	10-50 ppm
	3Pc15	++	+++	>100ppm	6Pc15	-	+++	10-50 ppm
	3Pc16	-	+++	10-50 ppm	6Pc16	-	+	>100 ppm

Circa	1Pc17	-	+++	50-100 ppm	4Pc17	-	+++	10-50 ppm
30gg	1Pc18	-	+++	50-100 ppm	4Pc18	++	+++	50-100 ppm
	1Pc19	-	+++	>100 ppm	4Pc19	-	+++	0-10 ppm
	1Pc20	-	++	10-50 ppm	4Pc20	-	++	50-100 ppm
	1Pc21	-	+++	50-100 ppm	4Pc21	-	+/-	10-50 ppm
	1Pc22	-	+	0-10 ppm	4Pc22	+++	+++	10-50 ppm
	1Pc23	-	+++	>100 ppm	4Pc23	++	++	0 ppm
	1Pc24	-	+++	0-10 ppm	4Pc24	-	+++	10-50 ppm
	2Pc17	-	+++	10-50 ppm	5Pc17	-	+++	>100 ppm
	2Pc18	-	++	50-100 ppm	5Pc18	-	+++	10-50 ppm
	2Pc19	++	+++	10-50 ppm	5Pc19	-	+++	10-50 ppm
	2Pc20	-	+++	>100 ppm	5Pc20	++	+++	>100 ppm
	2Pc21	-	+++	0-10 ppm	5Pc21	+	+++	10-50 ppm
	2Pc22	-	+++	50-100 ppm	5Pc22	+/-	++	>100 ppm
	2Pc23	-	+++	50-100 ppm	5Pc23	-	+++	10-50 ppm
	2Pc24	-	++	10-50 ppm	5Pc24	-	+++	50-100 ppm
	3Pc17	-	+++	>100 ppm	6Pc17	++	+++	10-50 ppm
	3Pc18	-	+++	0-10 ppm	6Pc18	-	+++	50-100 ppm
	3Pc19	-	+++	10-50 ppm	6Pc19	-	+++	10-50 ppm
	3Pc20	-	+++	10-50 ppm	6Pc20	++	+++	50-100 ppm
	3Pc21	-	+++	50-100 ppm	6Pc21	-	+++	50-100 ppm
	3Pc22	-	+++	>100ppm	6Pc22	-	+++	>100 ppm
	3Pc23	-	+++	10-50 ppm	6Pc23	+	++	50-100 ppm
	3Pc24	-	+++	50-100 ppm	6Pc24	-	+++	0-10 ppm

Fine	1Pc25	-	+++	10-50 ppm	4Pc25	-	+	10-50 ppm
Stag.	1Pc26	-	+++	0 ppm	4Pc26	+++	+++	>100 ppm
	1Pc27	++	+++	10-50 ppm	4Pc27	-	++	50-100 ppm
	1Pc28	-	+	>100ppm	4Pc28	-	+++	10-50 ppm
	1Pc29	-	+++	50-100 ppm	4Pc29	-	+++	50-100 ppm
	1Pc30	+/-	+++	10-50 ppm	4Pc30	-	++	50-100 ppm
	1Pc31	++	+++	0-10 ppm	4Pc31	+/-	+++	10-50 ppm
	1Pc32	-	+++	50-100 ppm	4Pc32	-	+++	>100 ppm
	2Pc25	-	+++	10-50 ppm	5Pc25	+	+++	>100 ppm
	2Pc26	-	+++	10-50 ppm	5Pc26	-	+++	>100 ppm
	2Pc27	+/-	+++	0-10 ppm	5Pc27	-	+++	50-100 ppm
	2Pc28	-	+++	>100ppm	5Pc28	-	+++	10-50 ppm
	2Pc29	++	+++	10-50 ppm	5Pc29	++	+++	0 ppm
	2Pc30	-	+++	0-10 ppm	5Pc30	-	++	>100 ppm
	2Pc31	-	+++	0-10 ppm	5Pc31	-	+++	50-100 ppm
	2Pc32	-	+++	>100ppm	5Pc32	-	+++	10-50 ppm
	3Pc25	-	+++	>100ppm	6Pc25	-	+++	10-50 ppm
	3Pc26	-	+++	0-10 ppm	6Pc26	-	+++	10-50 ppm
	3Pc27	-	+++	50-100 ppm	6Pc27	-	+++	50-100 ppm
	3Pc28	-	+++	0-10 ppm	6Pc28	-	+++	50-100 ppm
	3Pc29	-	+++	10-50 ppm	6Pc29	-	++	10-50 ppm
	3Pc30	+	+++	10-50 ppm	6Pc30	-	+	50-100 ppm
	3Pc31	-	+++	10-50 ppm	6Pc31	-	+++	10-50 ppm
	3Pc32	-	+++	50-100 ppm	6Pc32	+/-	+++	50-100 ppm

Figura 1 Avvio della crescita di microrganismi sulla superficie dell'involucro : si notano numerose microcolonie di stafilococchi e lo sviluppo iniziale di ife di muffe



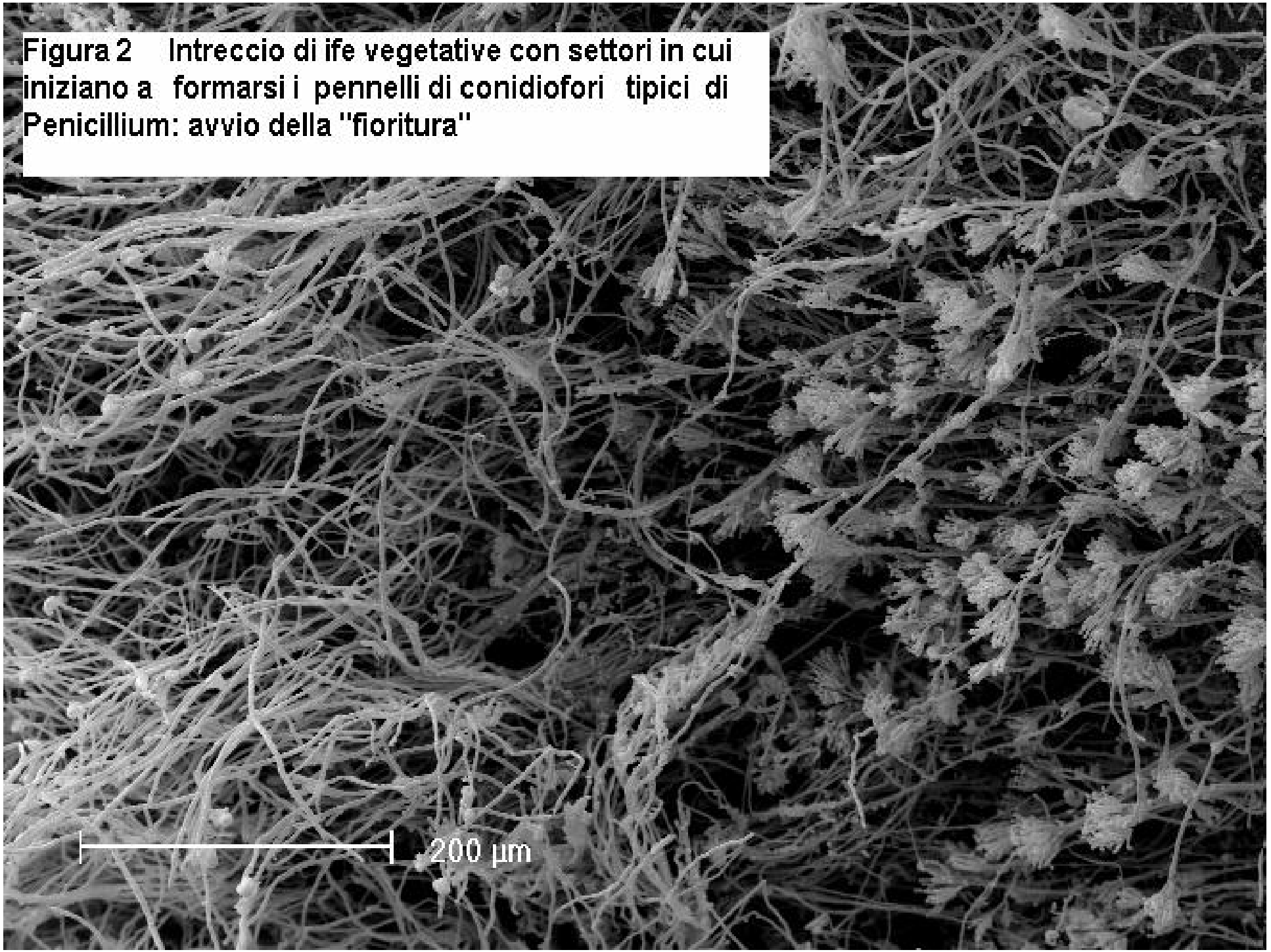


Figura 2 Intreccio di ife vegetative con settori in cui iniziano a formarsi i pennelli di conidiofori tipici di Penicillium: avvio della "fioritura"

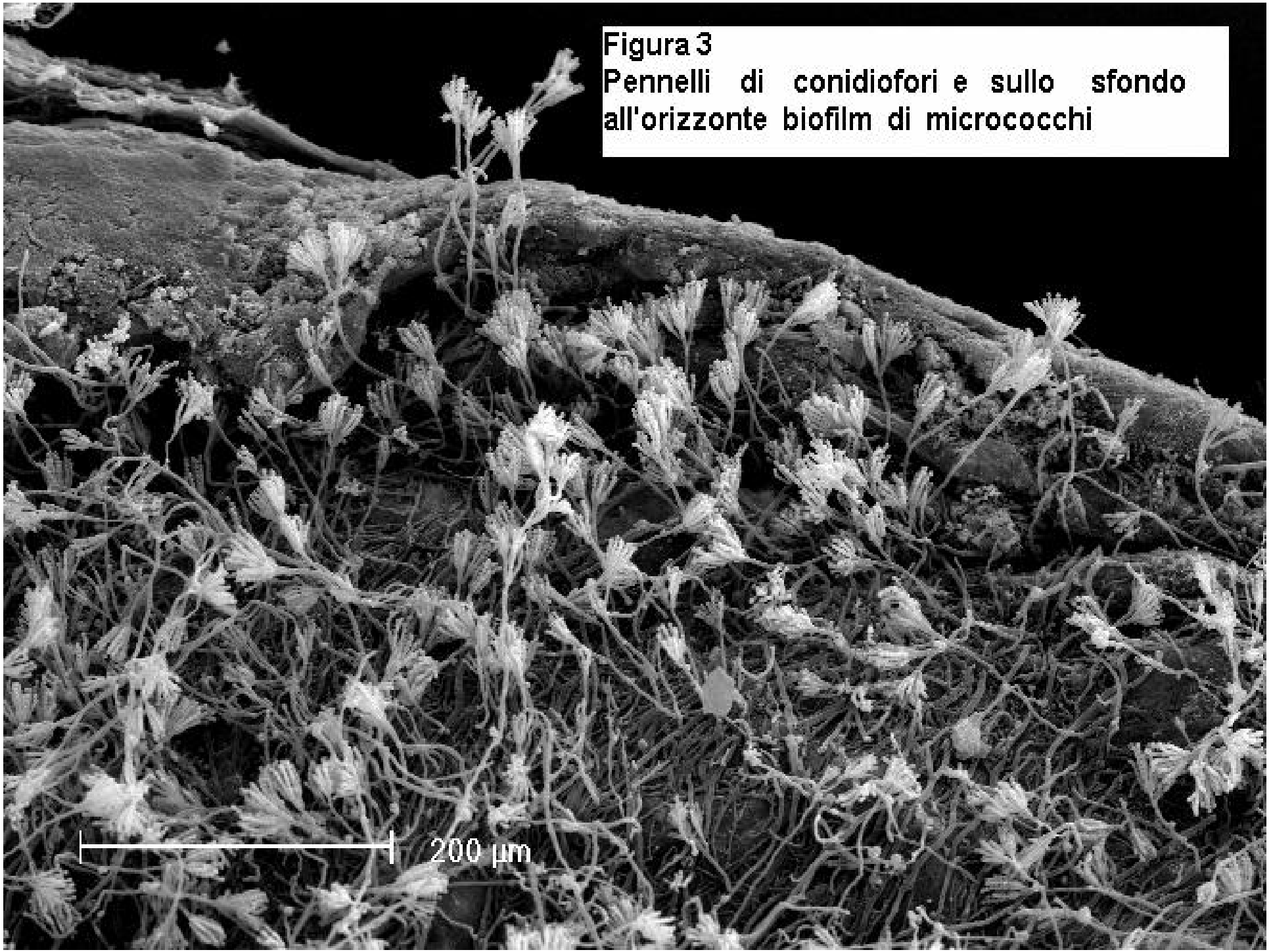


Figura 3
Pennelli di conidiofori e sullo sfondo all'orizzonte biofilm di micrococchi

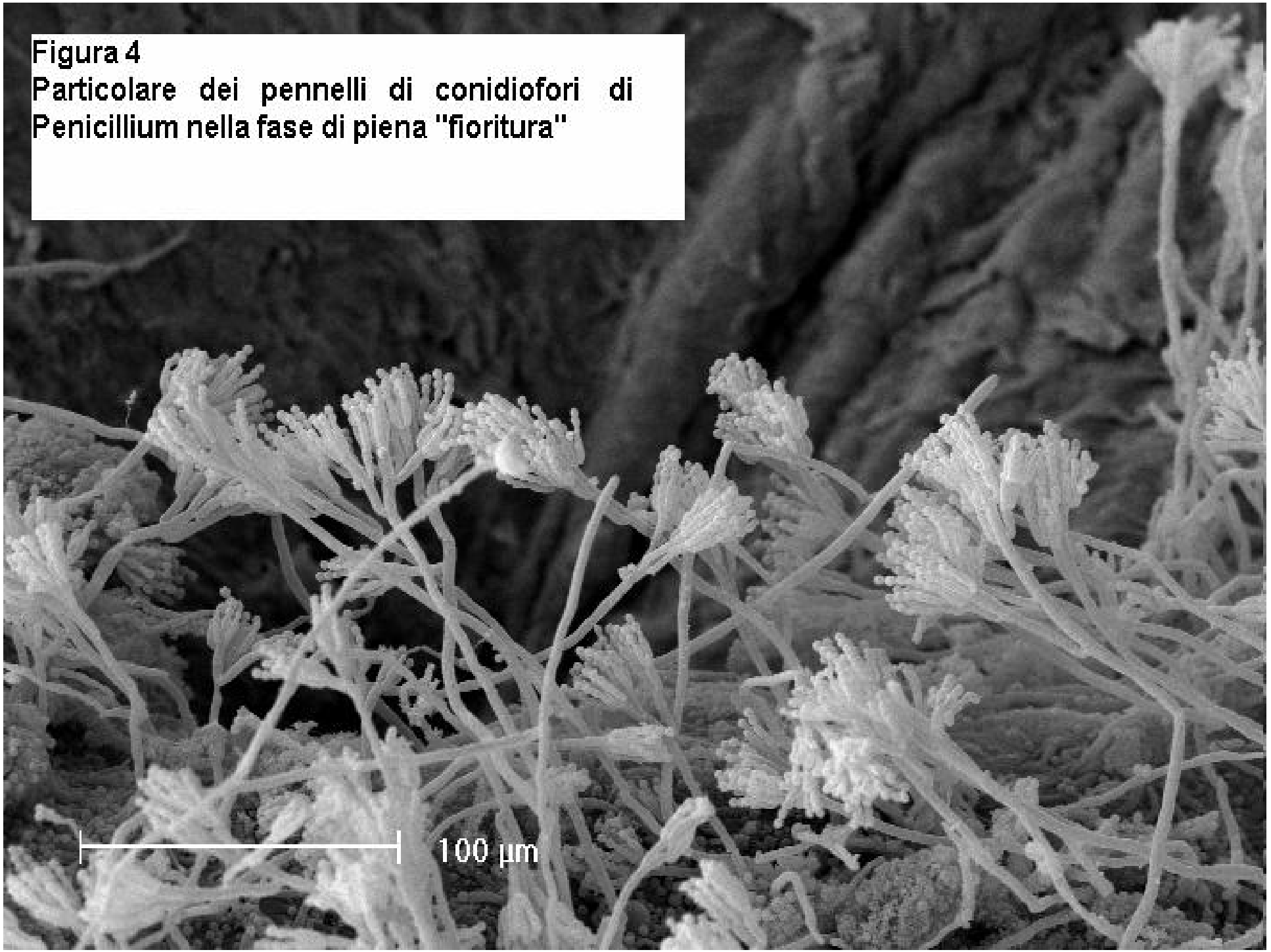


Figura 4
Particolare dei pennelli di conidiofori di Penicillium nella fase di piena "fioritura"

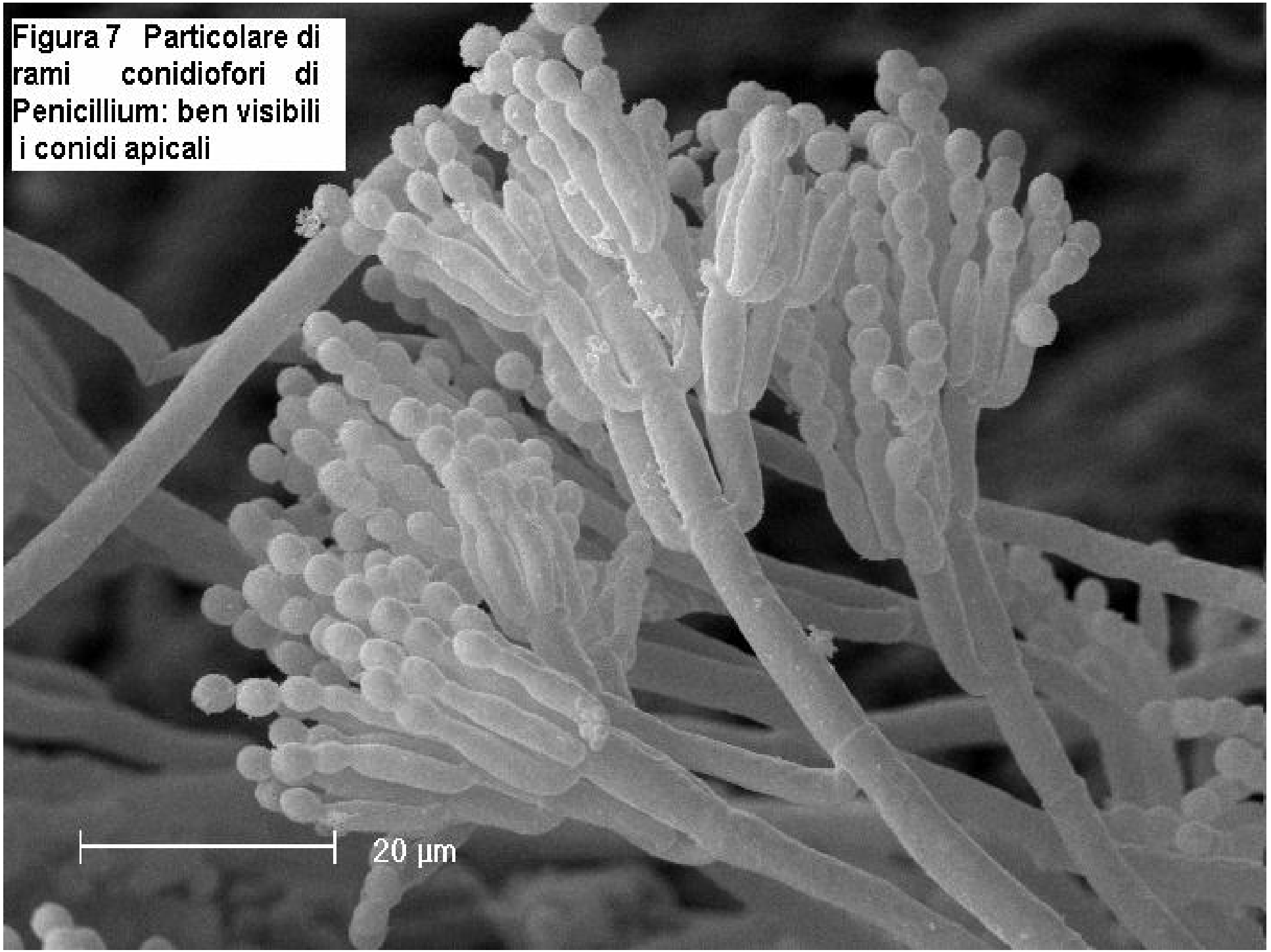
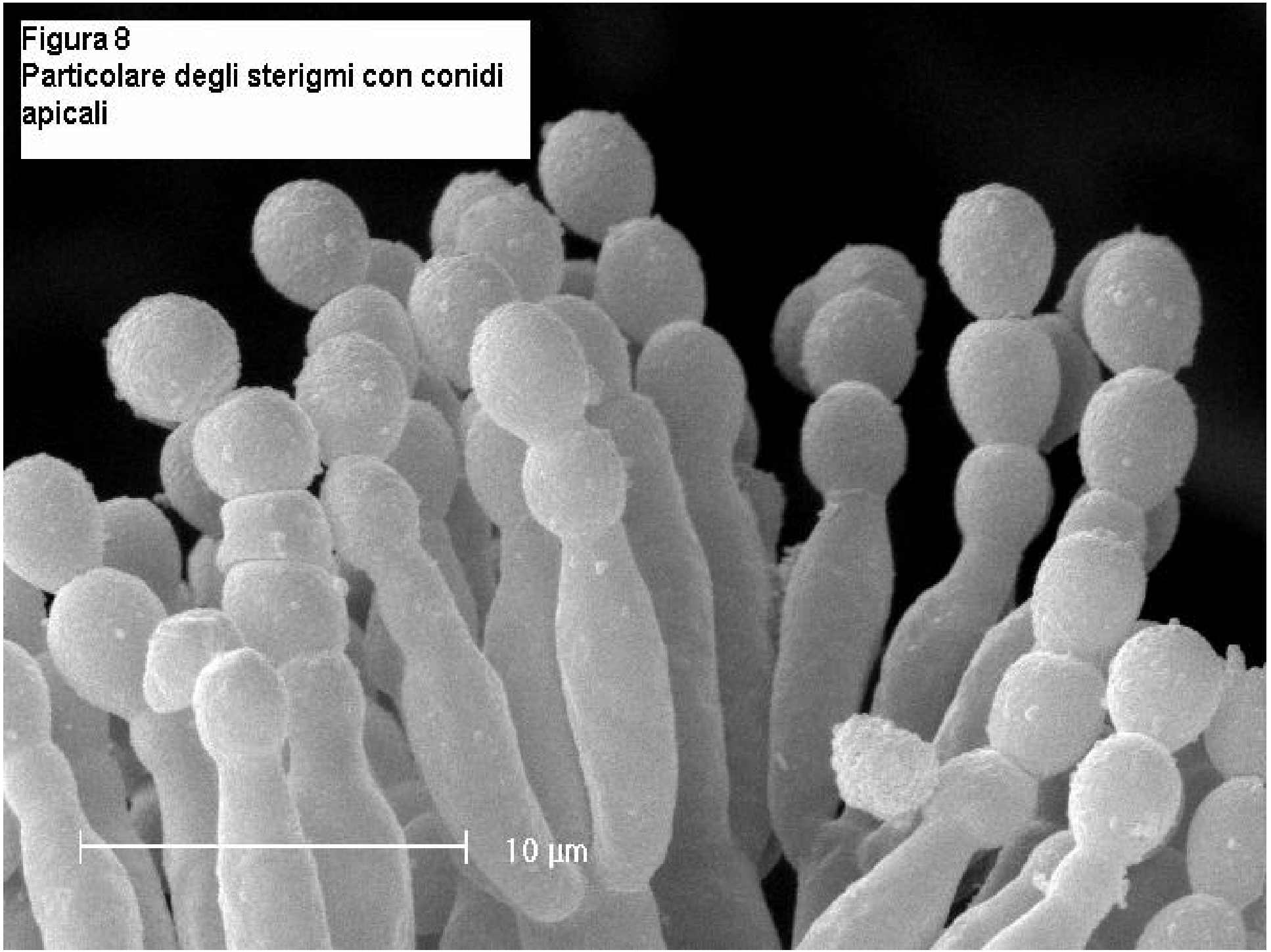
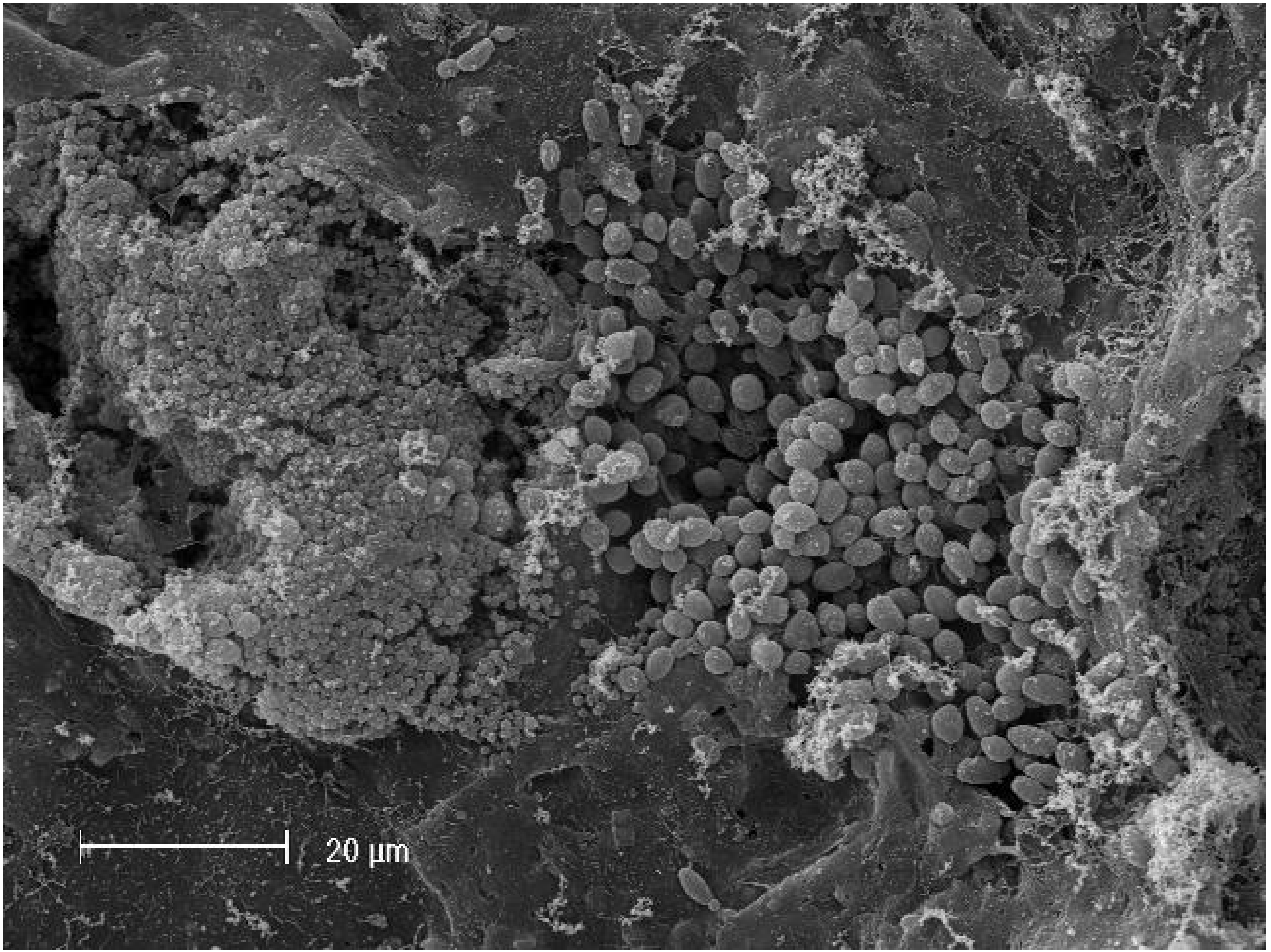
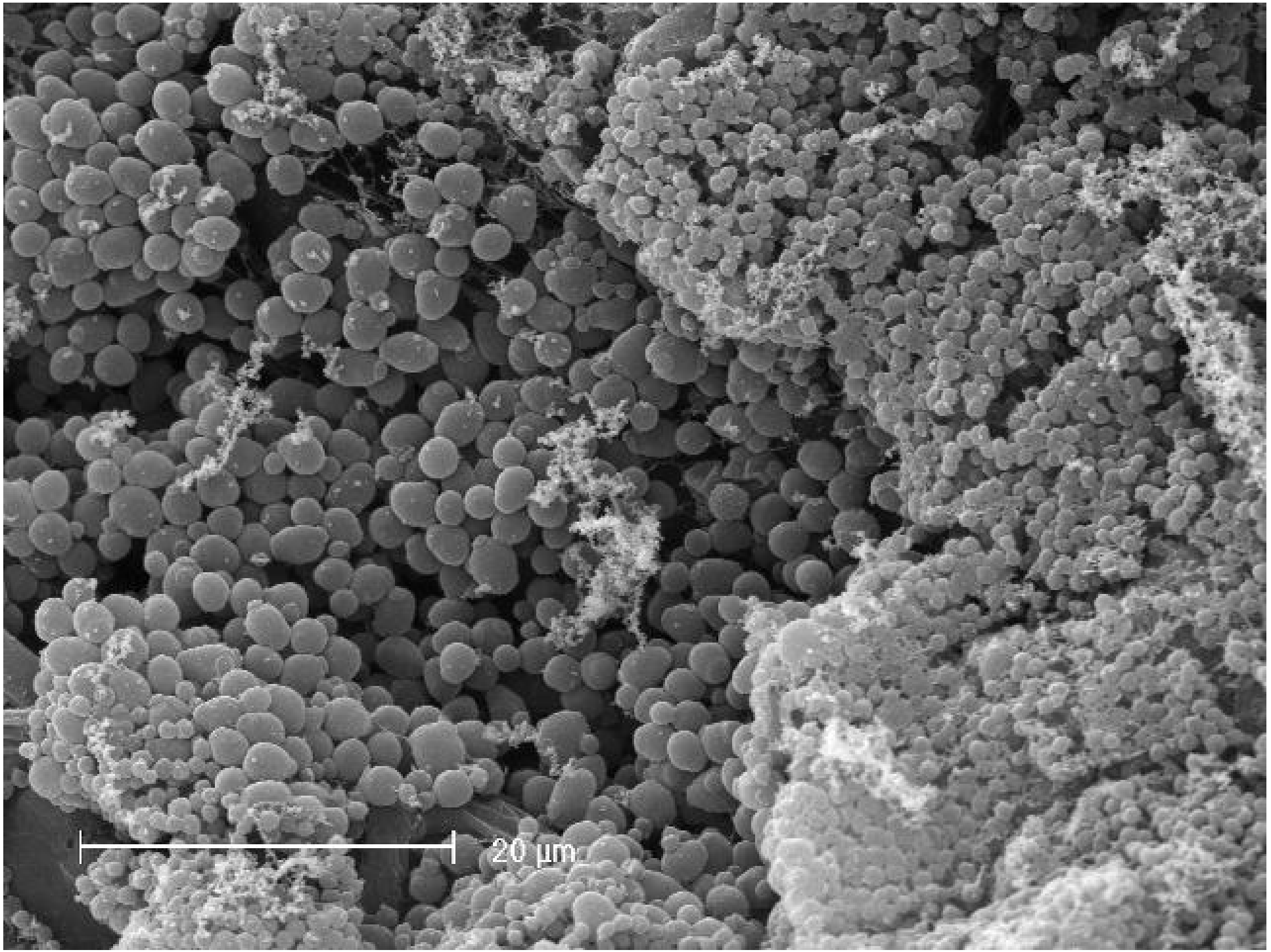


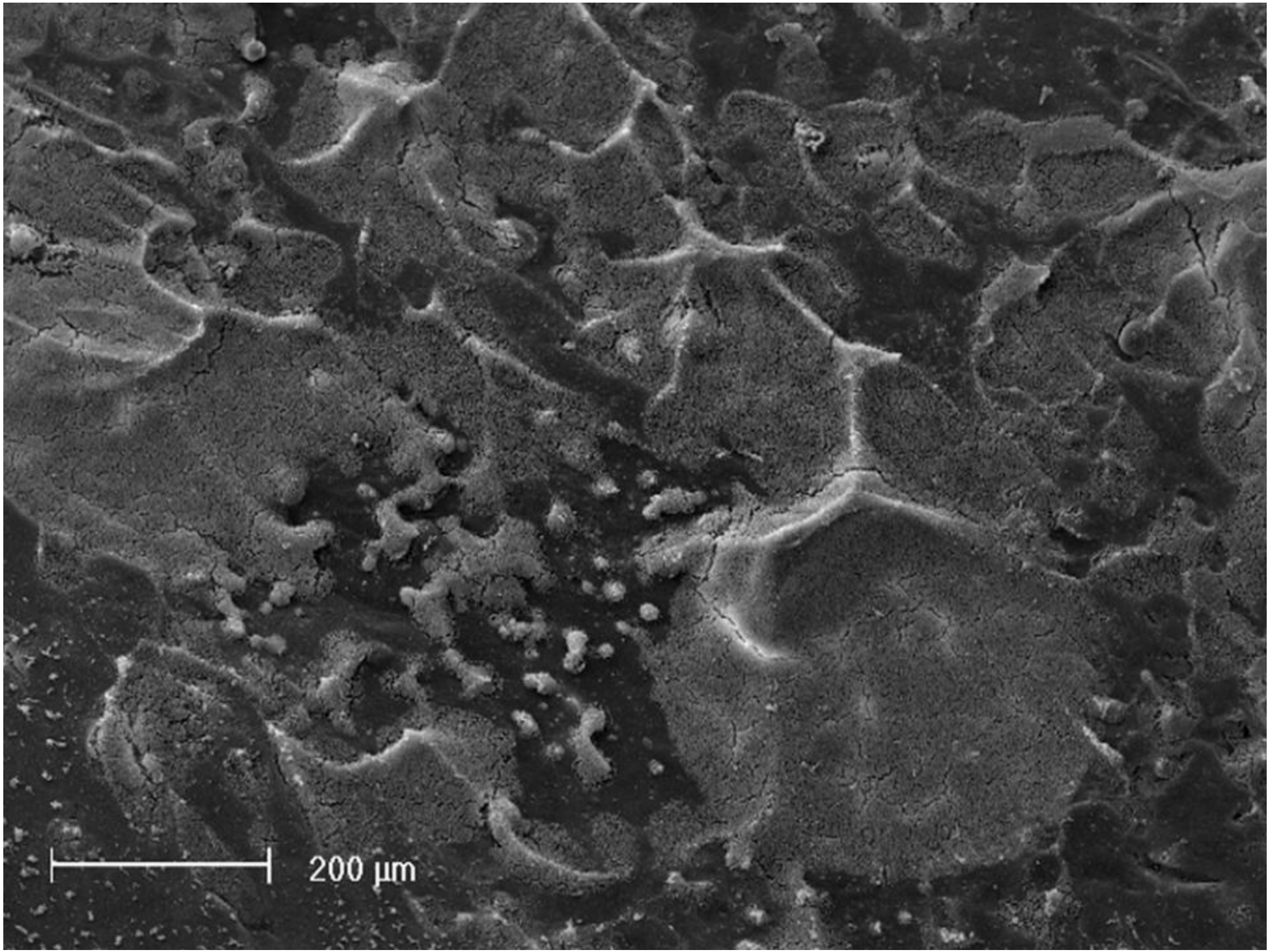
Figura 7 Particolare di rami conidiofori di Penicillium: ben visibili i conidi apicali

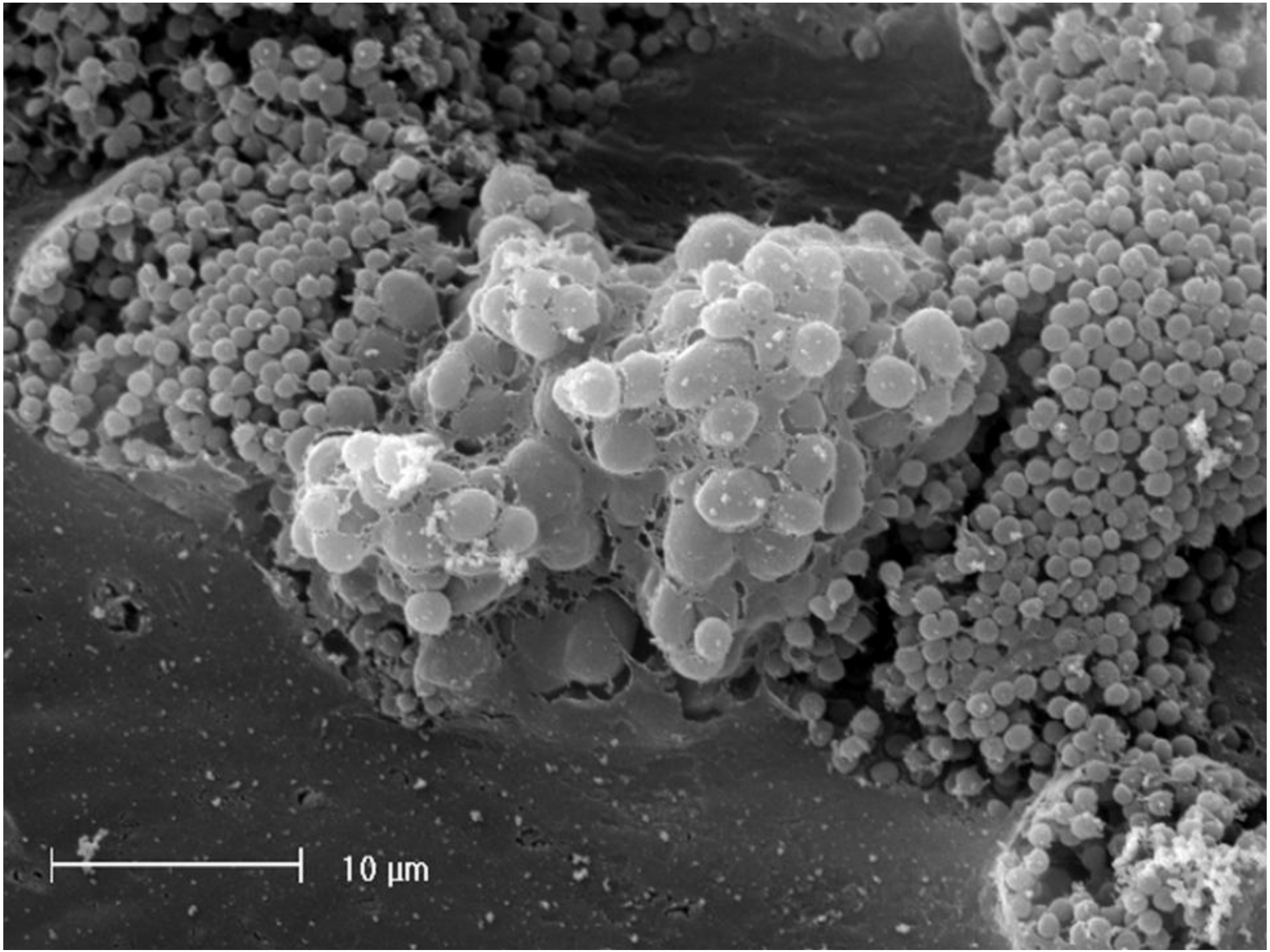
Figura 8
Particolare degli sterigmi con conidi apicali

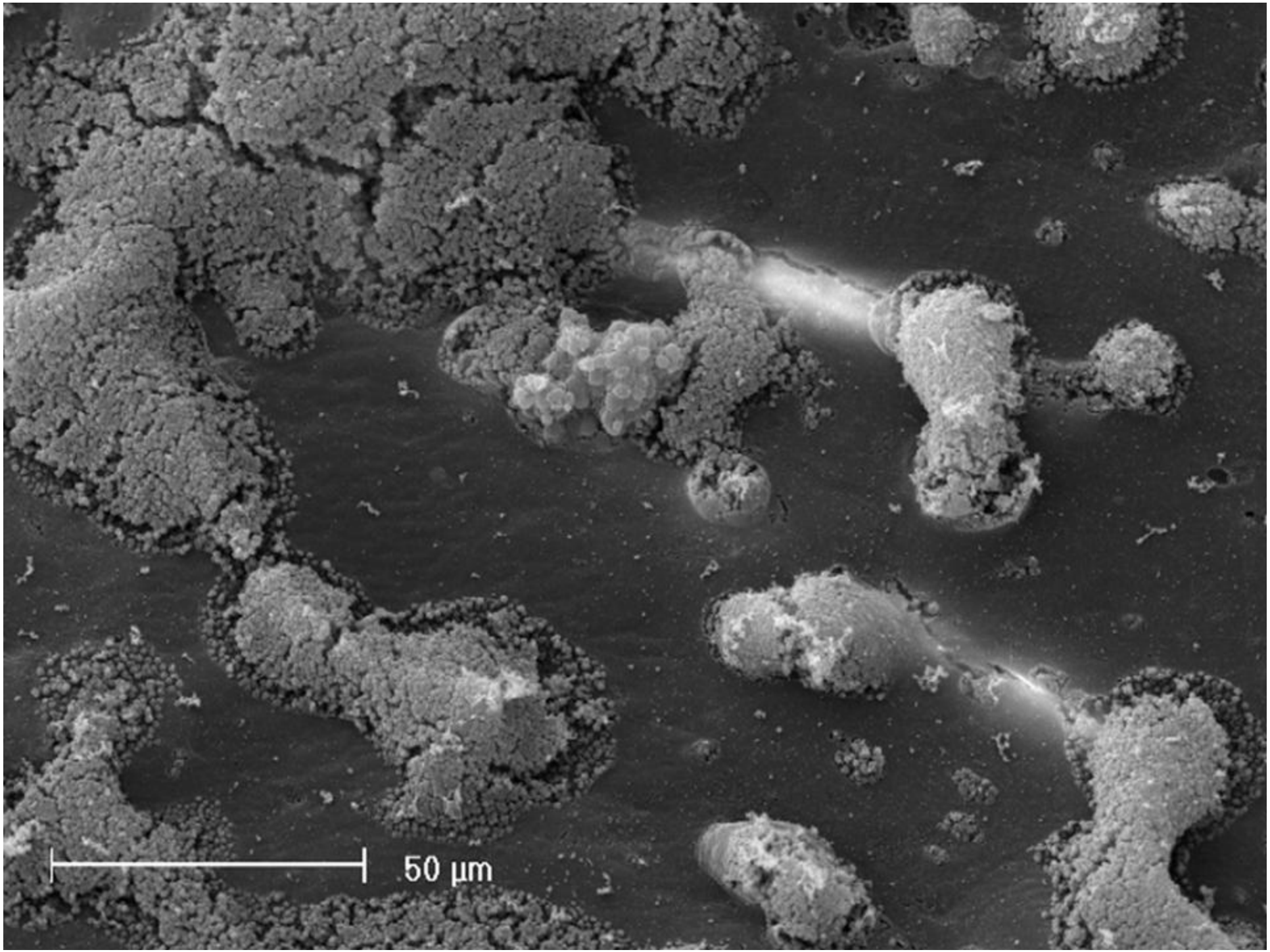


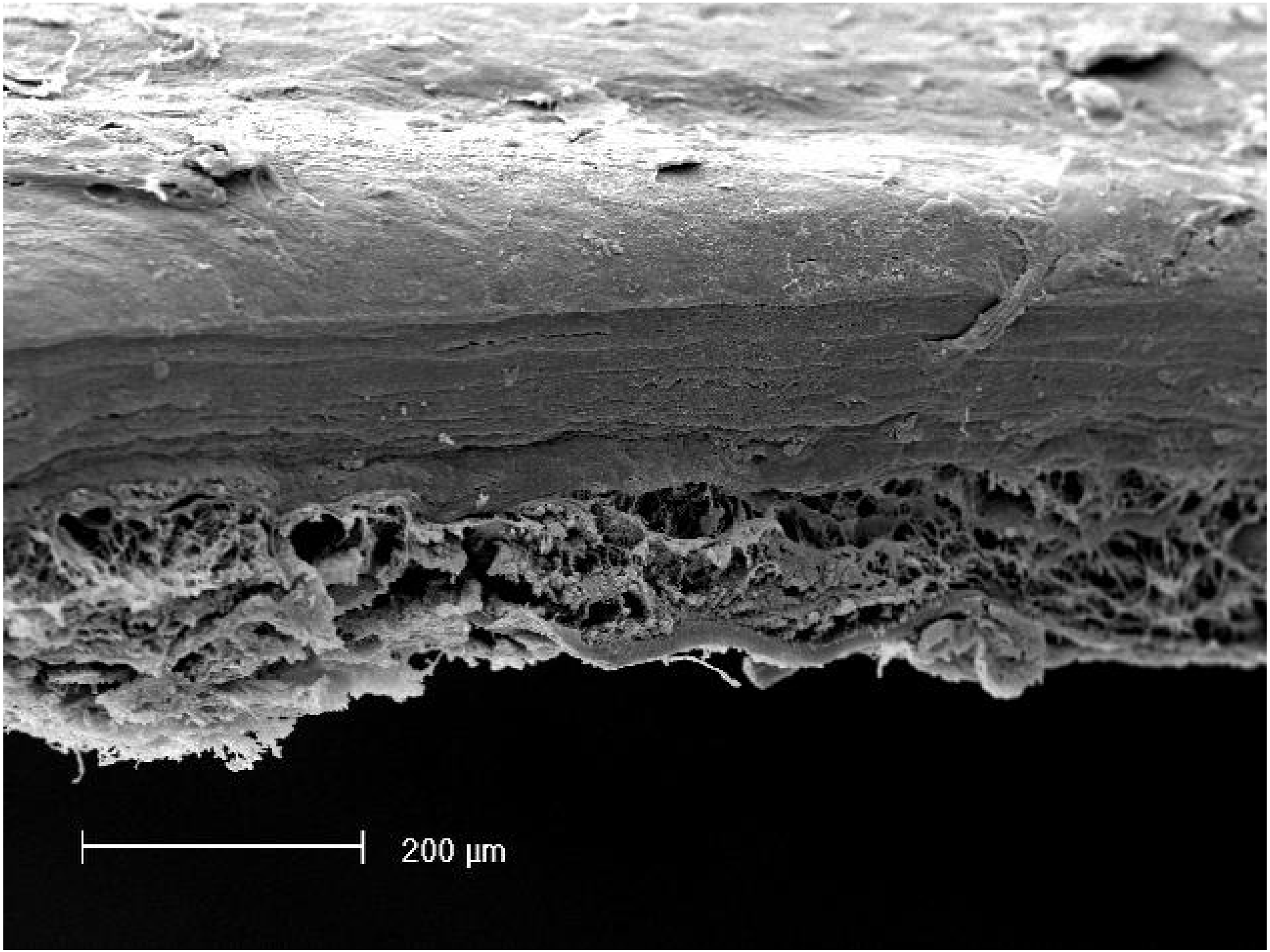

20 µm

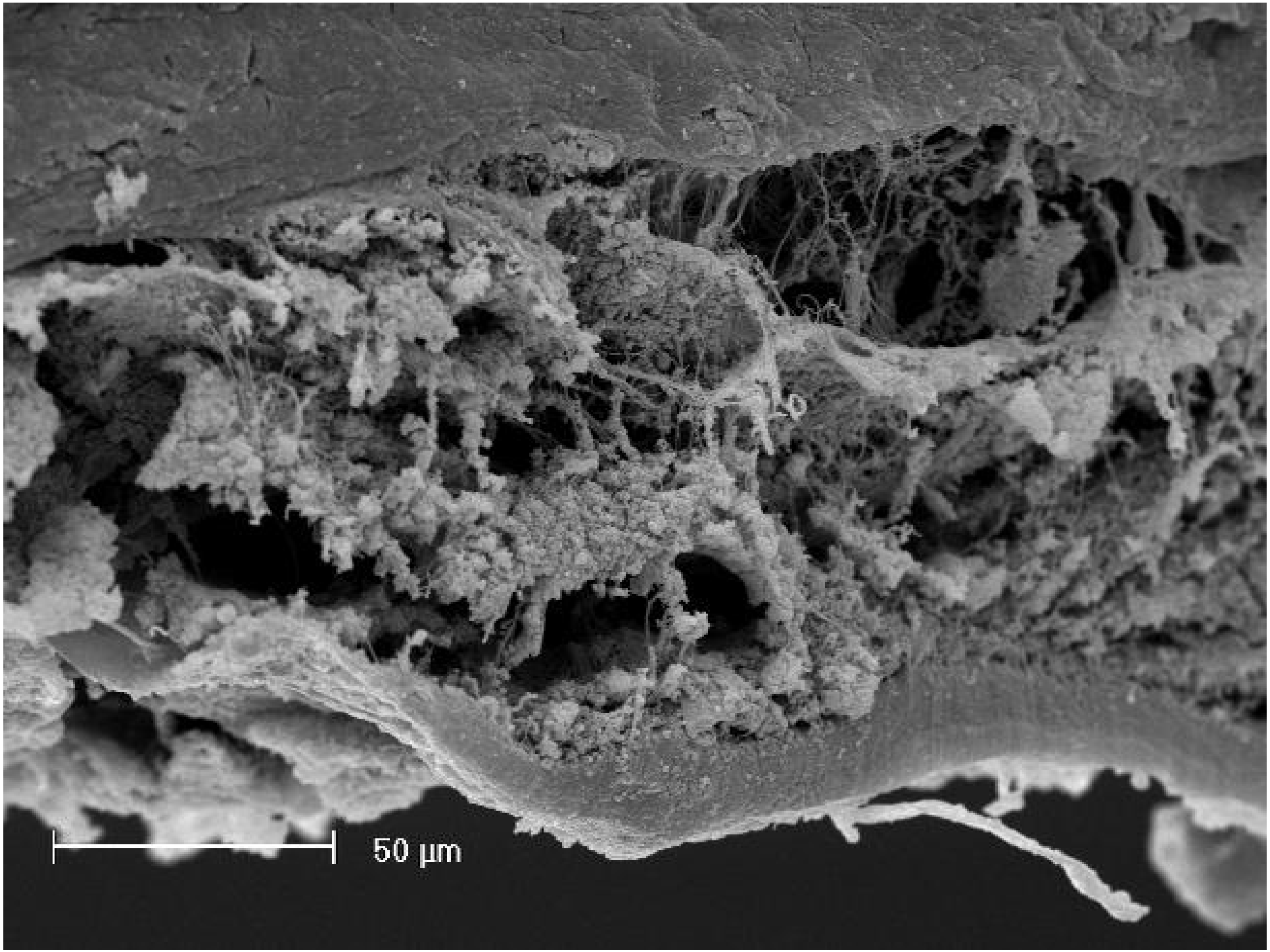

20 µm

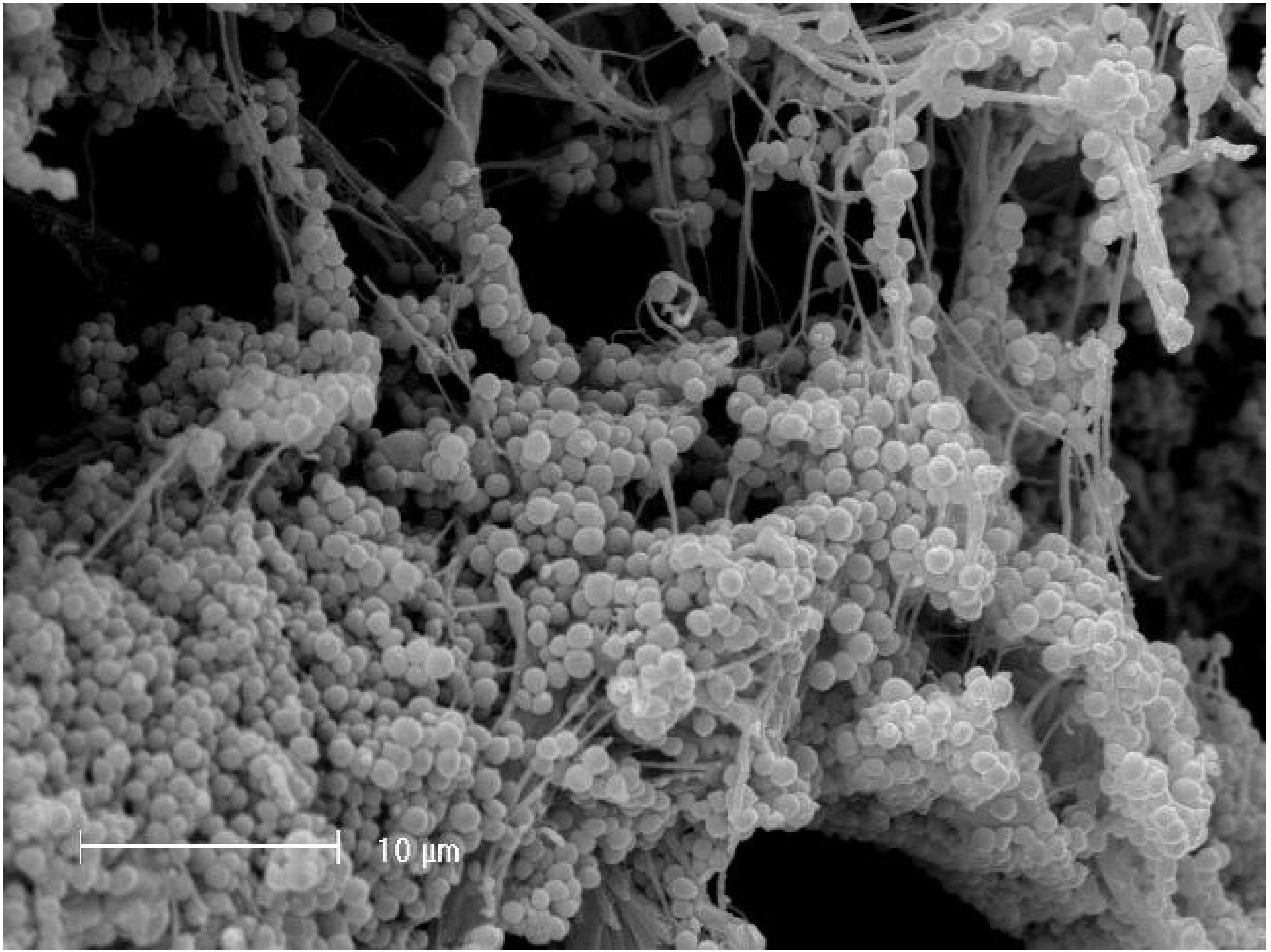

200 µm

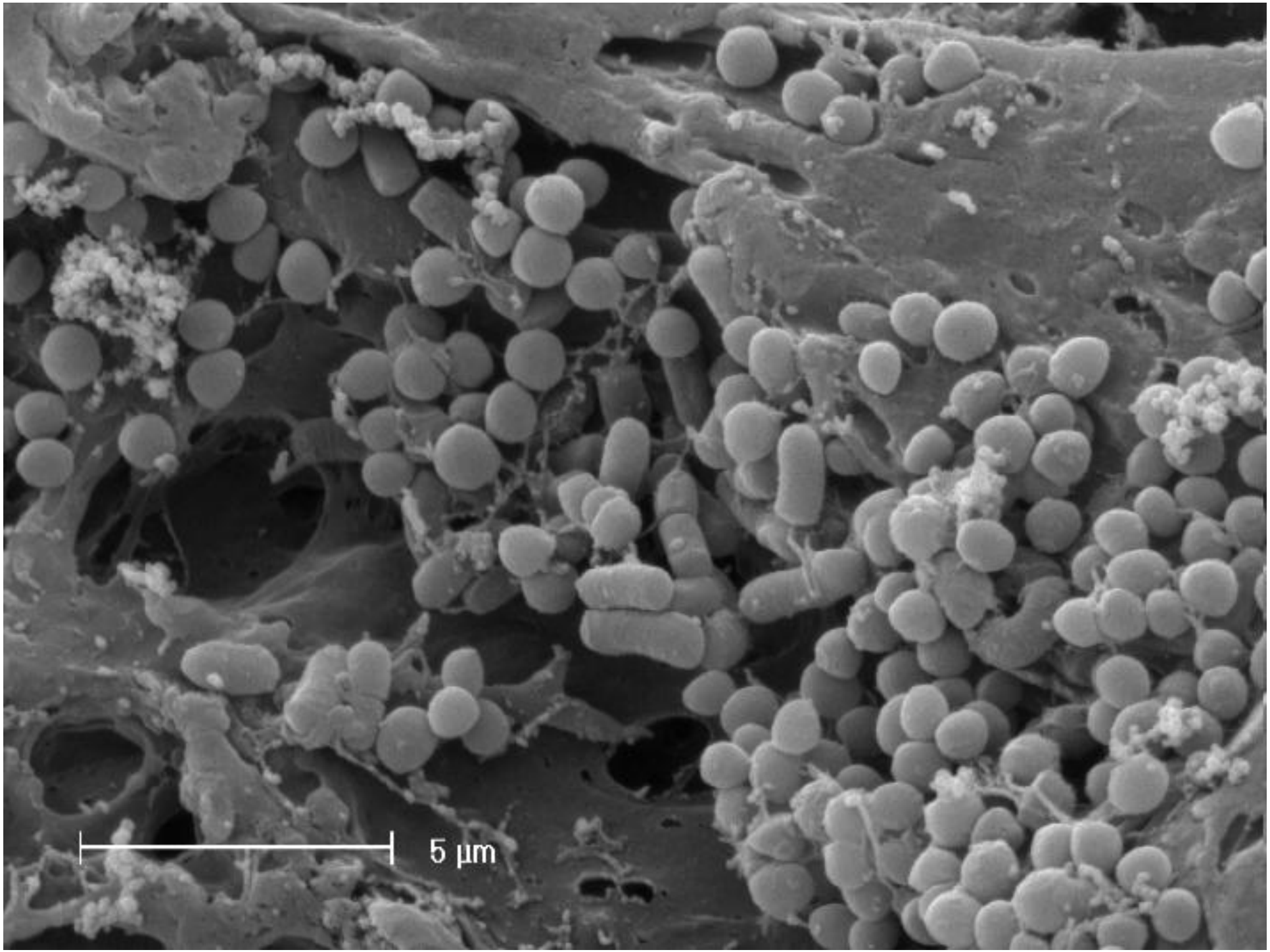

10 µm

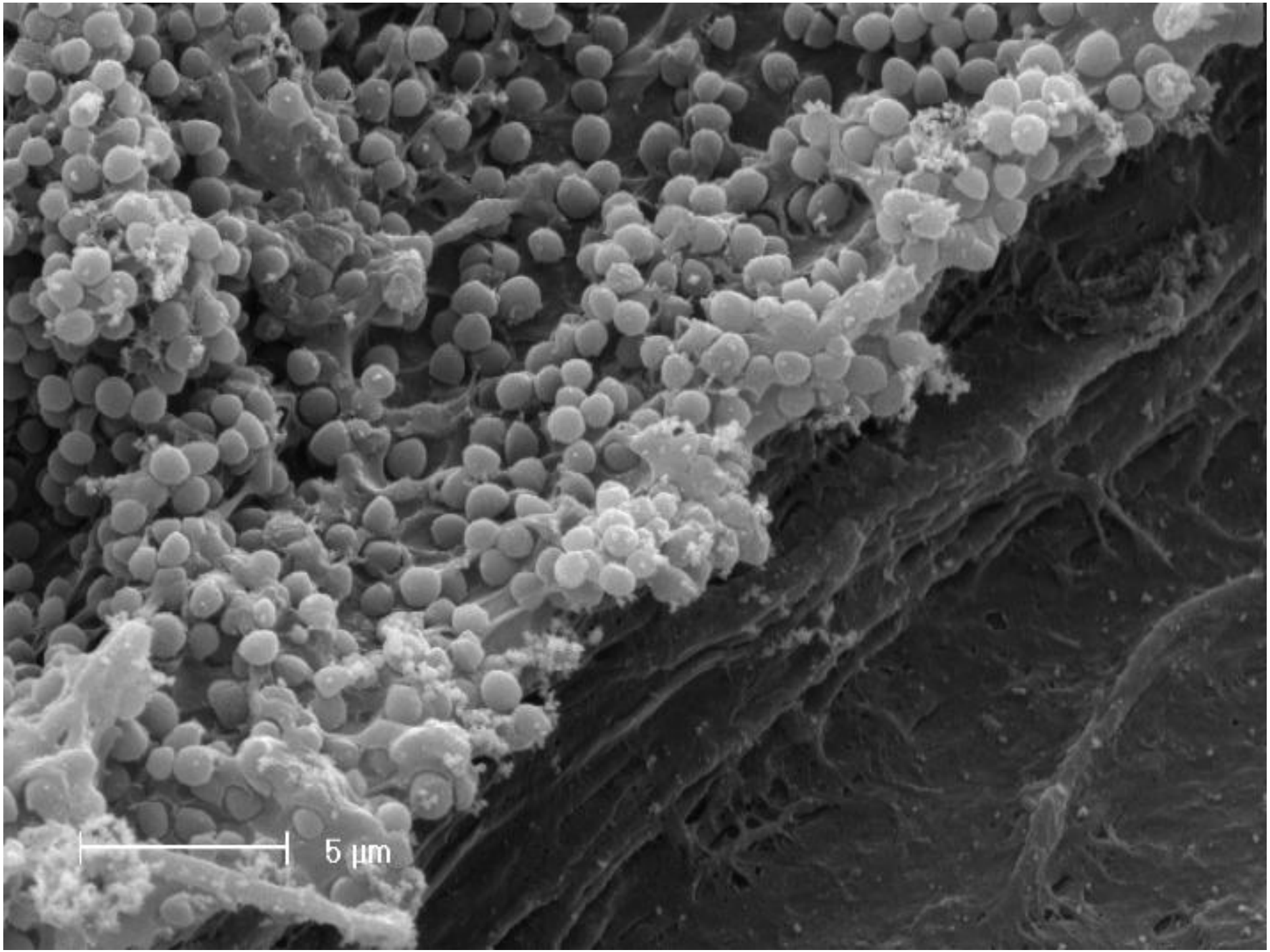

50 µm

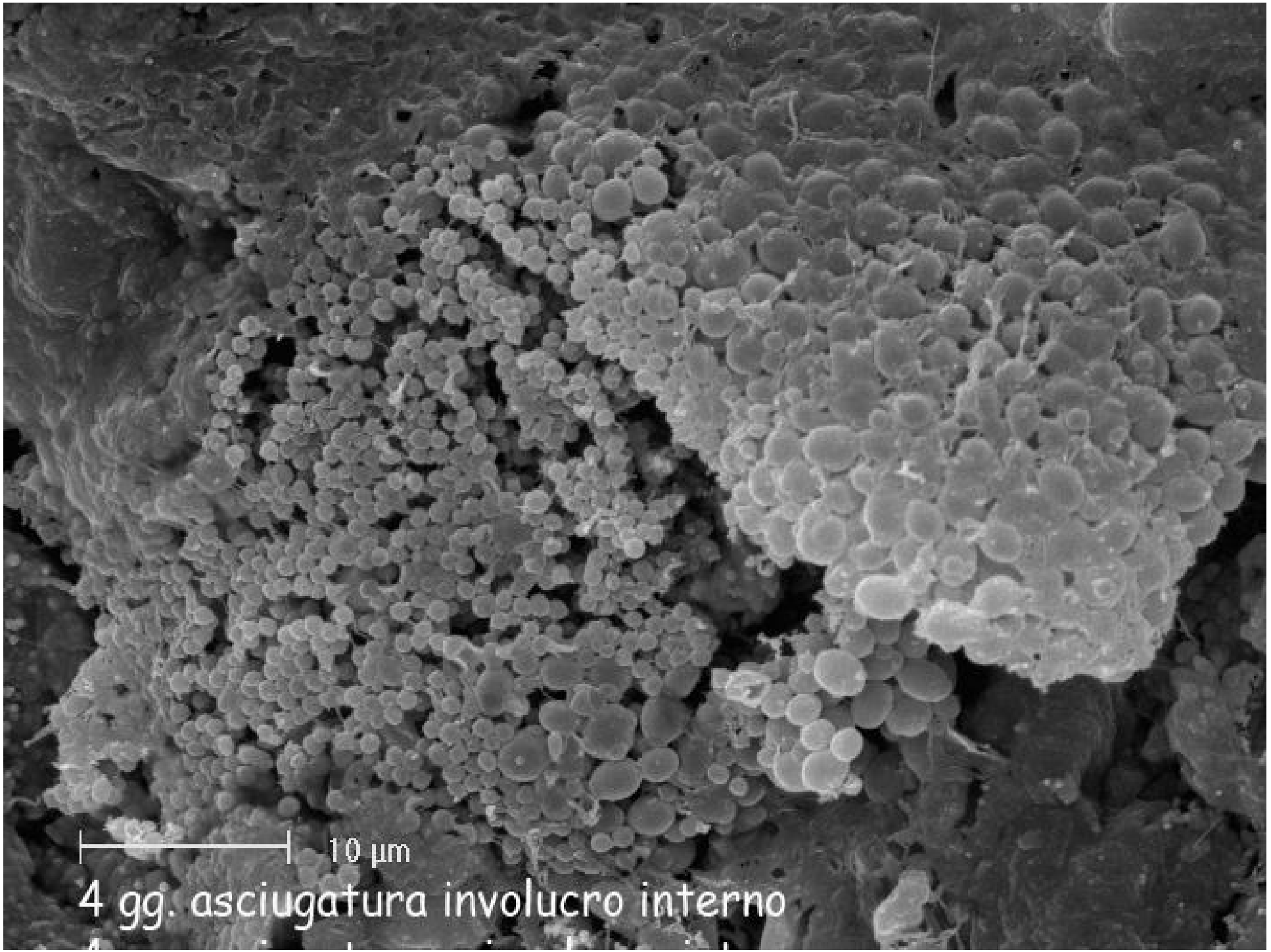

200 µm

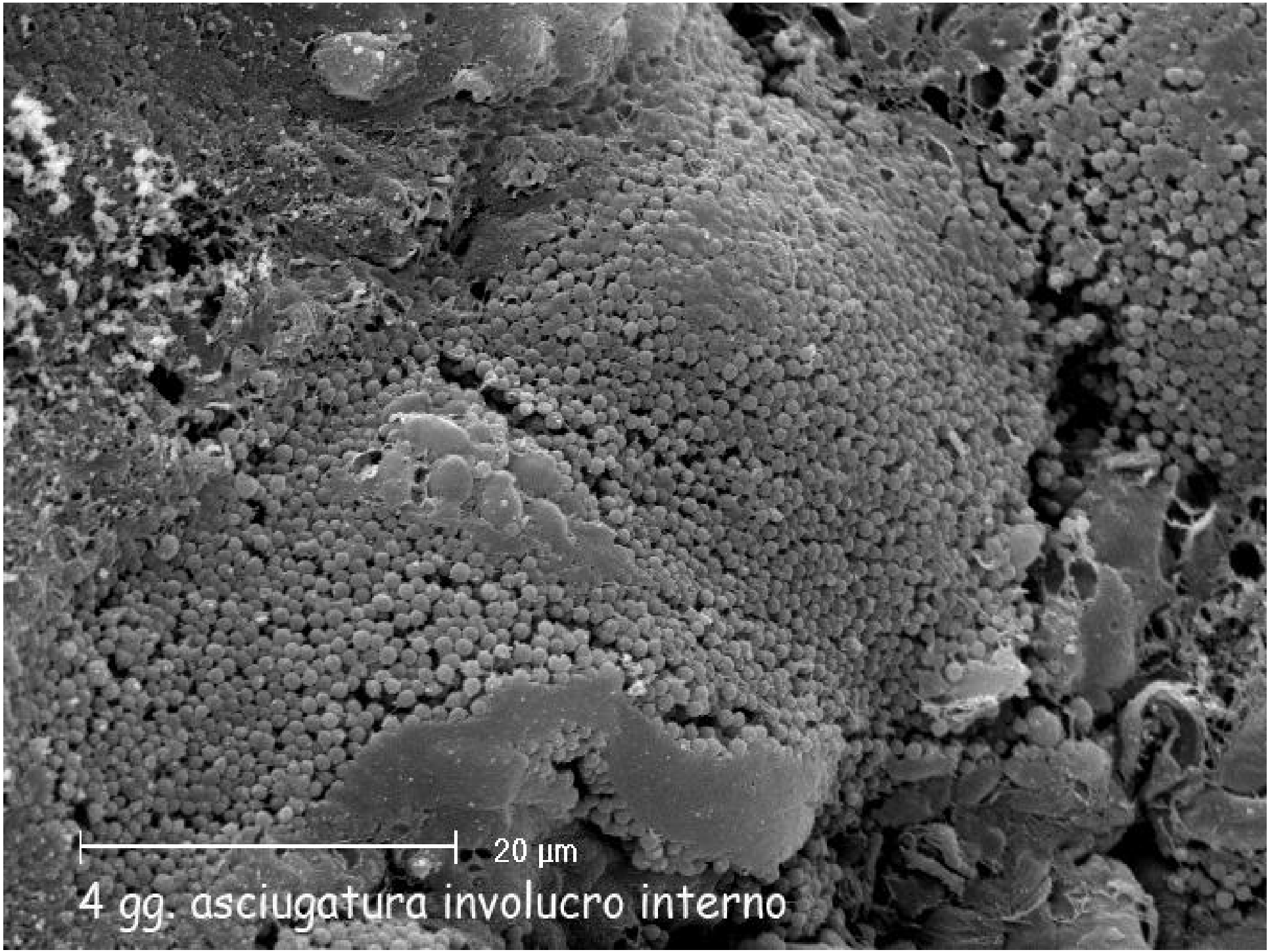

50 µm

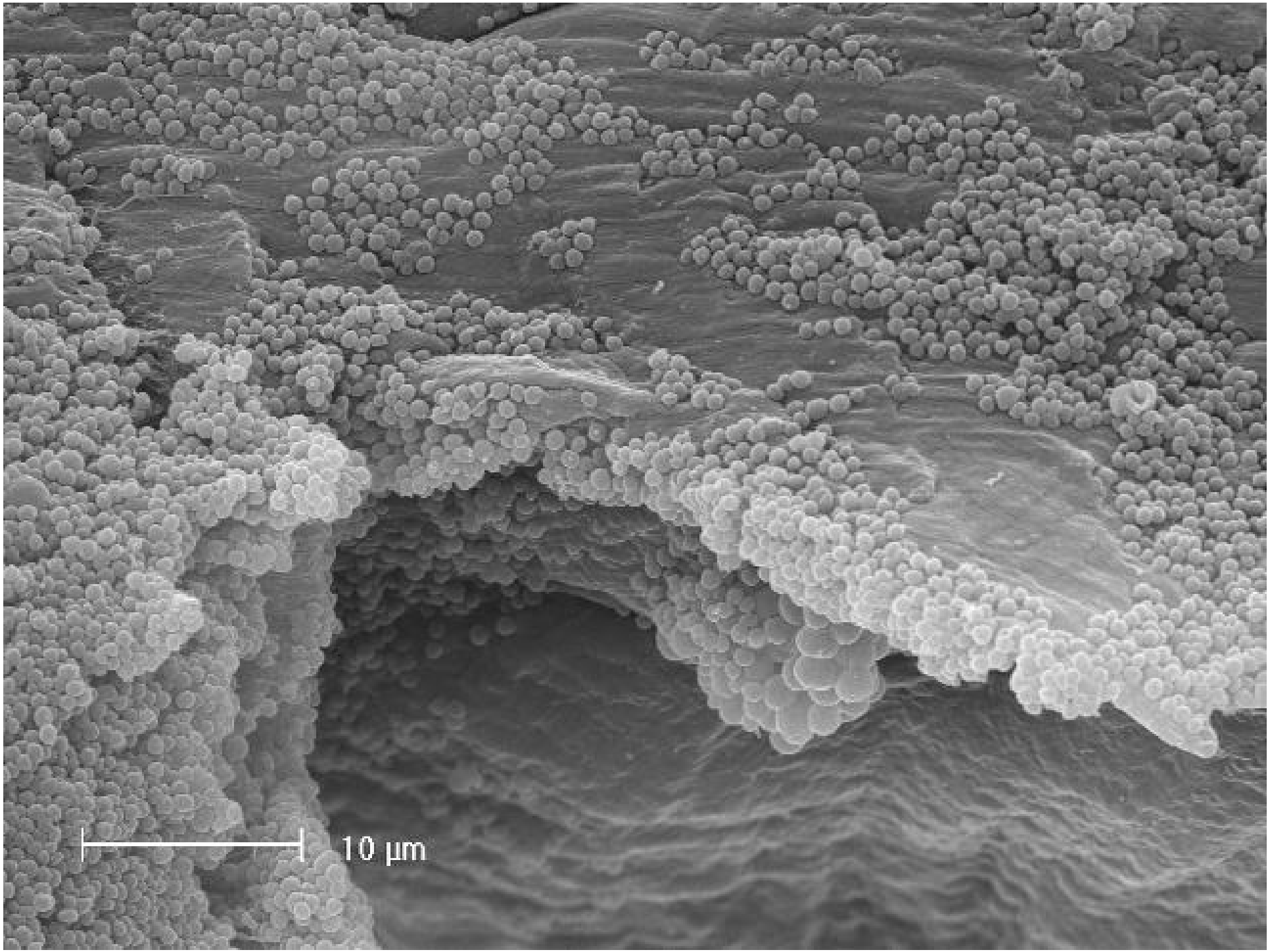

10 µm

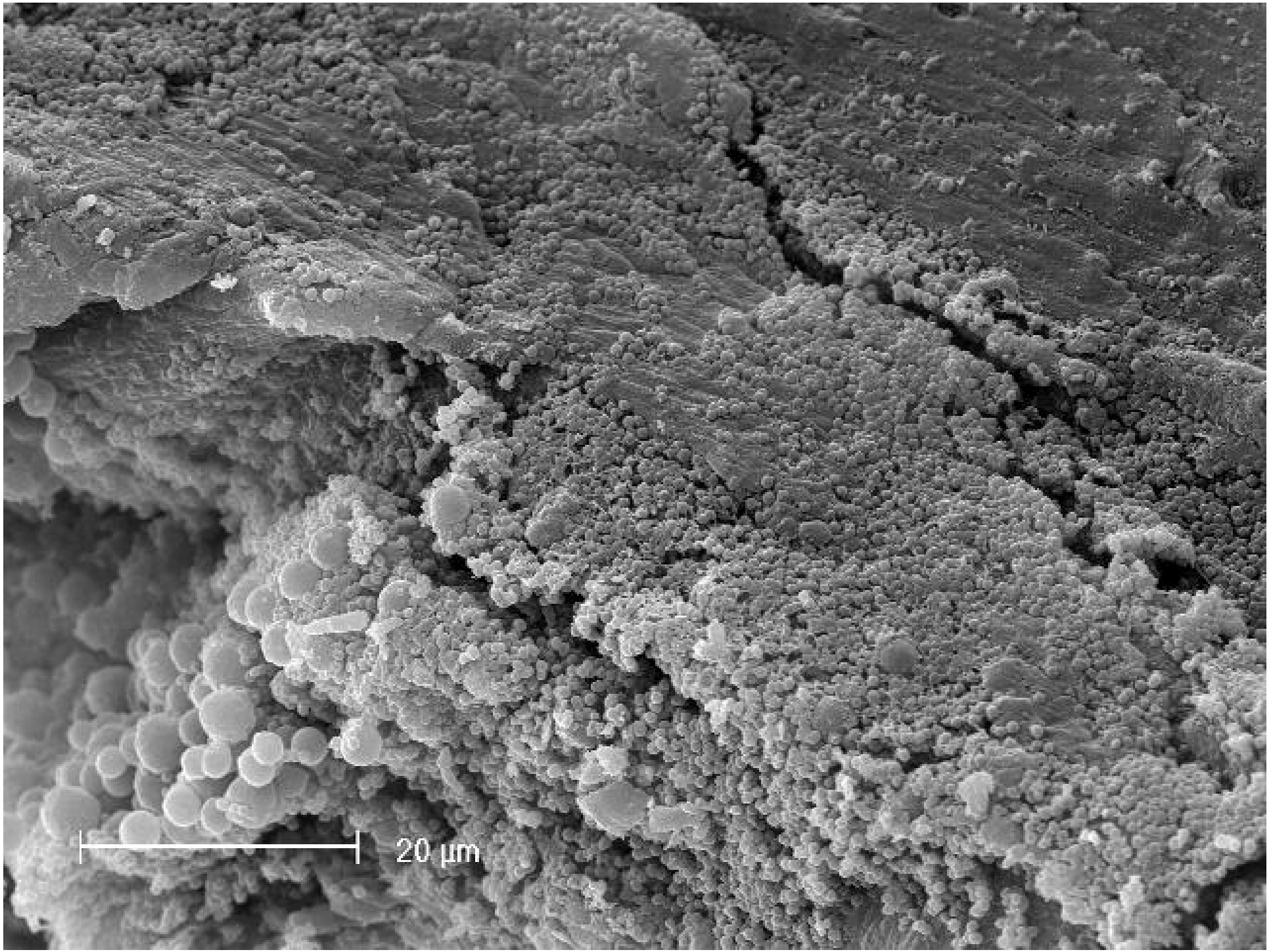

5 µm

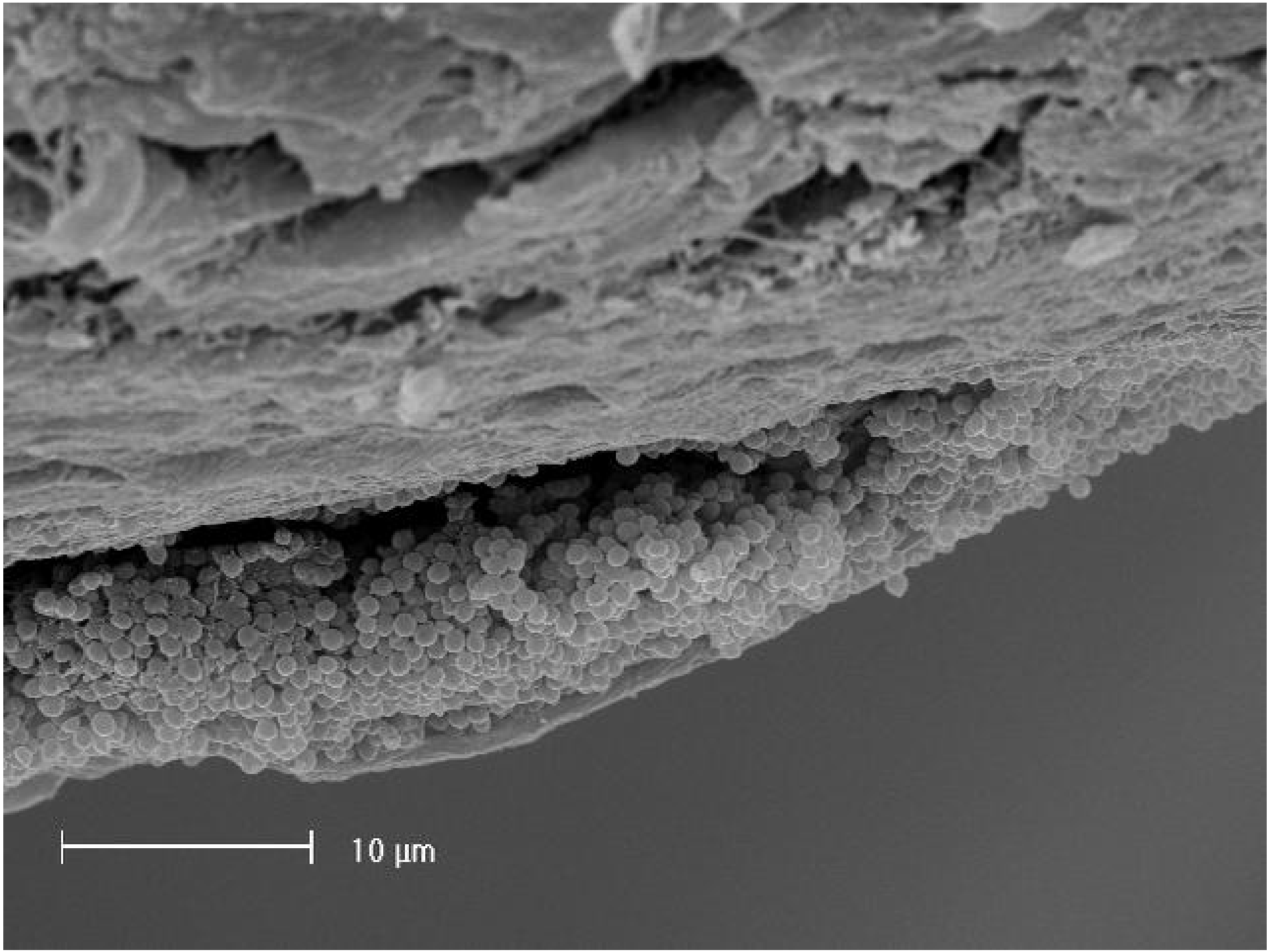

5 µm

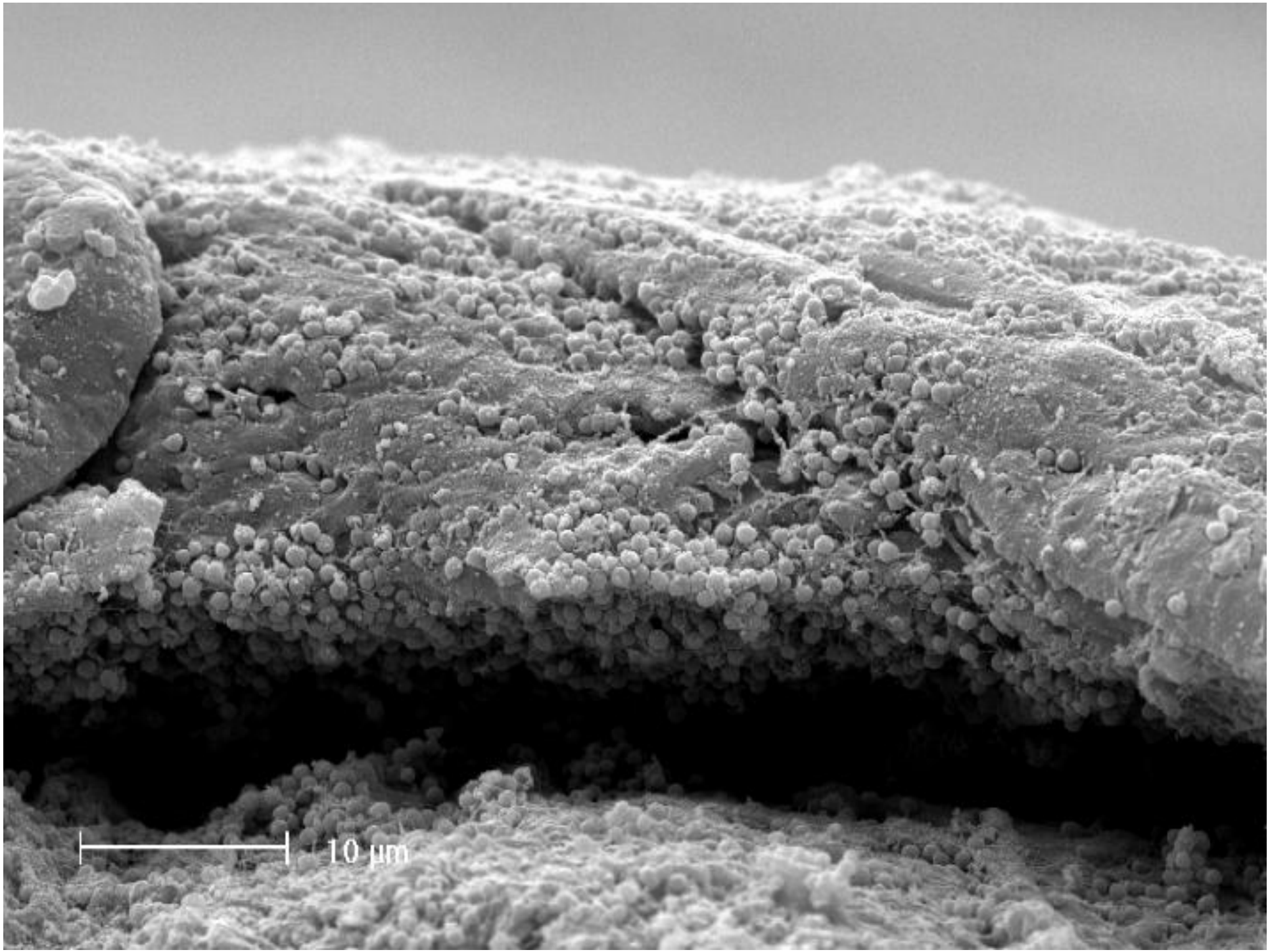

10 µm
4 gg. asciugatura involucro interno

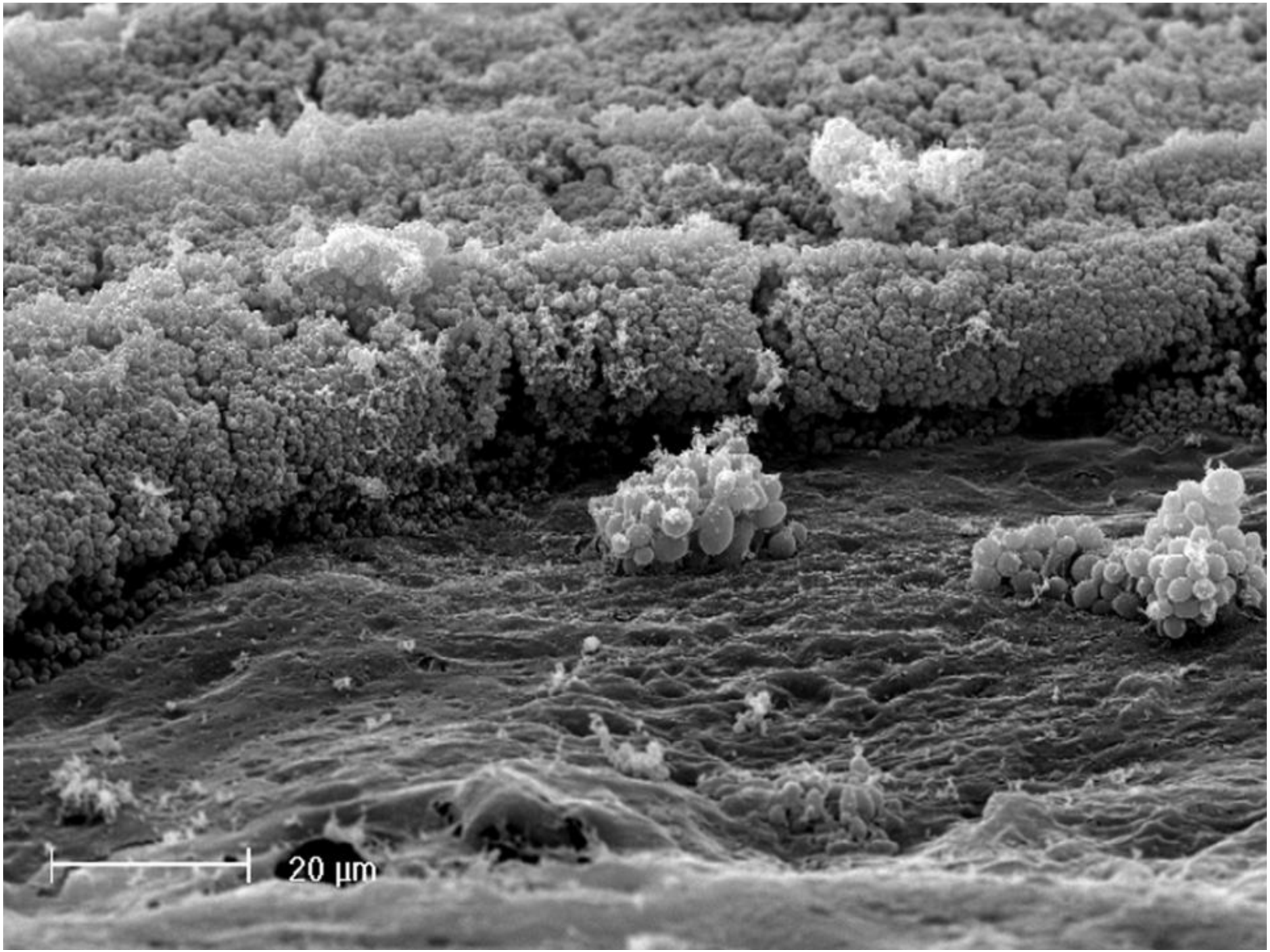

20 µm
4 gg. asciugatura involucro interno

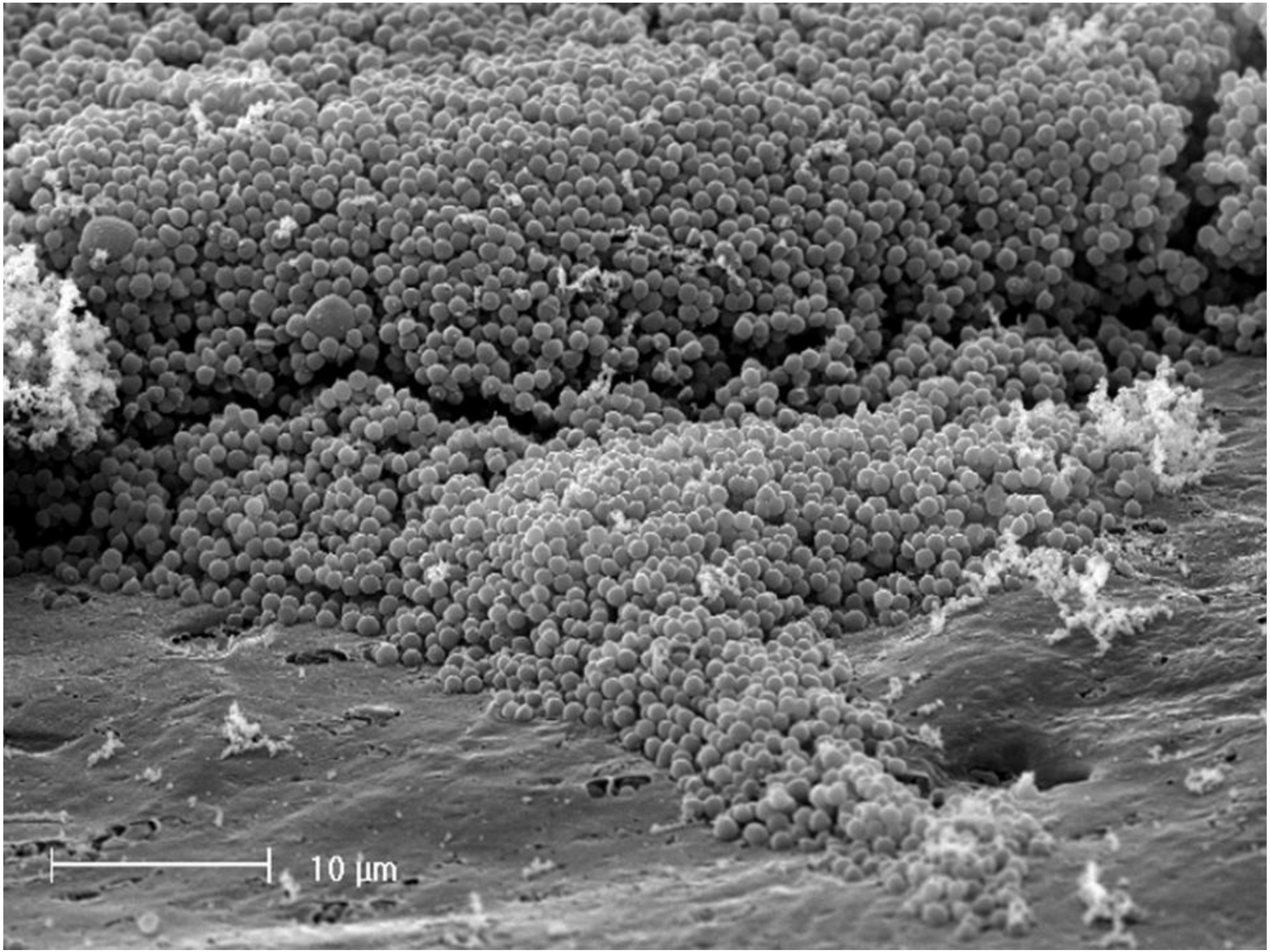

10 µm


20 µm


10 µm


10 µm


20 µm


10 µm

Profili RAPD di salumi dei Nebrodi inoculati con 2 ceppi autoctoni di stafilococchi