



PEWARNAAN BTA UNTUK PENAPISAN TB PARU

Laboratorium Mikrobiologi FK Unsyiah - RSUDZA



Mycobacteria

- Bakteri aerob (obligate aerobes), bentuk batang, tidak berspora
- *Mycobacterium tuberculosis* penyebab tuberculosis, merupakan bakteri patogen utama pada manusia
- *Mycobacterium leprae* penyebab leprosi (lepra)
- *Mycobacterium avium – intracellulare* (M. avium complex = MAC) dan *atypical mycobacteria* lainnya sering menginfeksi pasien *immunocompromised*; pada sistem imun normal jarang mengakibatkan penyakit)

Species	Reservoir	Common Clinical Manifestations; Comment
SPECIES ALWAYS CONSIDERED PATHOGENS		
<i>M. tuberculosis</i>	Humans	Pulmonary and disseminated tuberculosis, millions of cases annually in the world
<i>M. leprae</i>	Humans	Leprosy
<i>M. bovis</i>	Humans, cattle	Tuberculosis-like disease; rare in North America; <i>M. bovis</i> is closely related to <i>M. tuberculosis</i>
SPECIES POTENTIALLY PATHOGENIC IN HUMANS		
Moderately common causes of disease		
<i>M. avium</i> complex	Soil, water, birds, fowl, swine, cattle, environment	Disseminated, pulmonary, very common in AIDS patients; occurs in other immunosuppressed patients; uncommon in patients with normal immune systems
<i>M. kansasii</i>	water, cattle	Pulmonary, other sites
Uncommon to very rare causes of disease		
<i>M. africanum</i>	Humans, monkeys	Pulmonary cultures; resembles <i>M. tuberculosis</i> ; rare
<i>M. genavense</i>	Humans?, pet birds?	Blood in AIDS patients; grows in liquid medium (BACTEC) and on solid medium supplemented with mycobactin j; grows in 2-9 weeks
<i>M. haemophilum</i>	Unknown	Subcutaneous nodules and ulcers primarily in AIDS patients; requires hemoglobin or hermin; grows at 28-32°C; rare
<i>M. malmoense</i>	Unknown, environment	Pulmonary; tuberculosis-like (adults), lymph nodes (children); most reported cases are from Sweden, but organism may be much more widespread; <i>M. malmoense</i> is closely related to <i>M. avium-intracellulare</i> ; takes 8-12 weeks to grow
<i>M. marinum</i>	Fish, water	Subcutaneous nodules and abscesses, skin ulcers
<i>M. scrofulaceum</i>	Soil, water, moist foods	Cervical lymphadenitis; usually cured by incision, drainage, and removal of involved lymph nodes
<i>M. simiae</i>	Monkeys, water	Pulmonary, disseminated in AIDS patients; rare
<i>M. szulgai</i>	Unknown	Pulmonary, tuberculosis-like; rare
<i>M. ulcerans</i>	Humans, environment	Subcutaneous nodules and ulcers; may be severe; <i>M. ulcerans</i> is closely related to <i>M. marinum</i> ; takes 6-12 weeks to grow; optimal growth at 33°C suggests environmental source; rare
<i>M. xenopi</i>	Water, birds	Pulmonary, tuberculosis-like with preexisting lung disease; rare
Rapid growers		
<i>M. fortuitum</i> and <i>M. chelonae</i>	Soil, water, animals, marine life	Cutaneous lesions most common, subcutaneous abscesses, disseminated infections; grow in ≤ 7 days; <i>M. fortuitum</i> is more susceptible to antibiotics
SAPROPHYTIC SPECIES THAT VERY RARELY CAUSE DISEASE IN HUMANS		
<i>M. gordonae</i>	Water	
<i>M. flavescens</i>	Soil, water	
<i>M. fallax</i>	Soil, water	
<i>M. gastri</i>	Gastric washing	

DIAGNOSIS LABORATORIUM

Pemeriksaan Mikroskopik BTA

- **Sputum (fresh) (TB pulmonal)**
- Gastric washing (TB anak)
- Urine (TB ginjal, urinary tract TB)
- Pleural fluid (Effusi pleura ec TB)
- Cerebrospinal fluid (meningitis TB, TB SSP)
- Biopsy material (TB jaringan)
- Darah (TB milier)

Sediaan dahak yang baik:

Terbuat dari dahak mukopurulen

Tersebar rata dalam bentuk spiral

Berukuran 2x3 cm

Tidak terlalu tebal

Tidak terlalu tipis

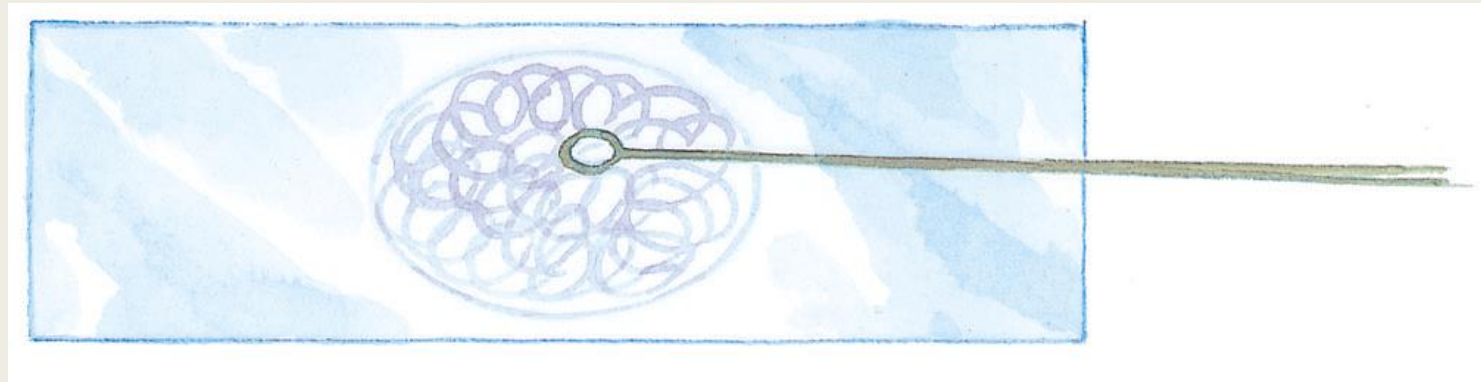
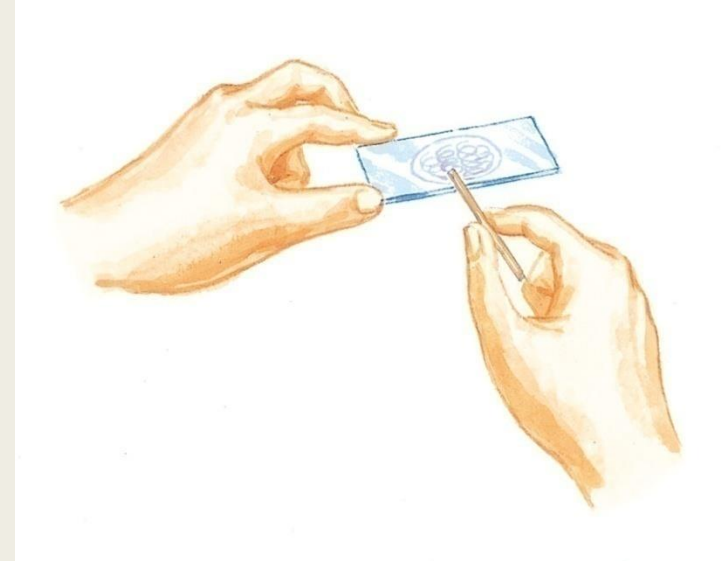
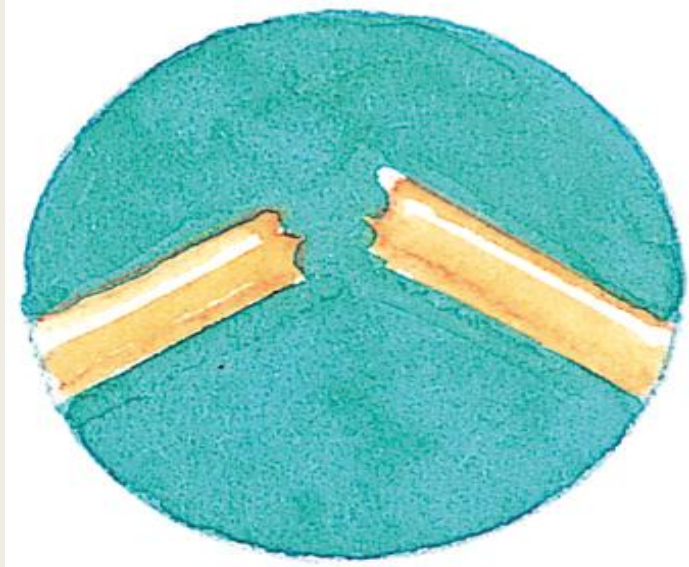
Dikeringkan di udara sebelum difiksasi, untuk mencegah pengelupasan

Preparasi Sediaan Dahak Langsung

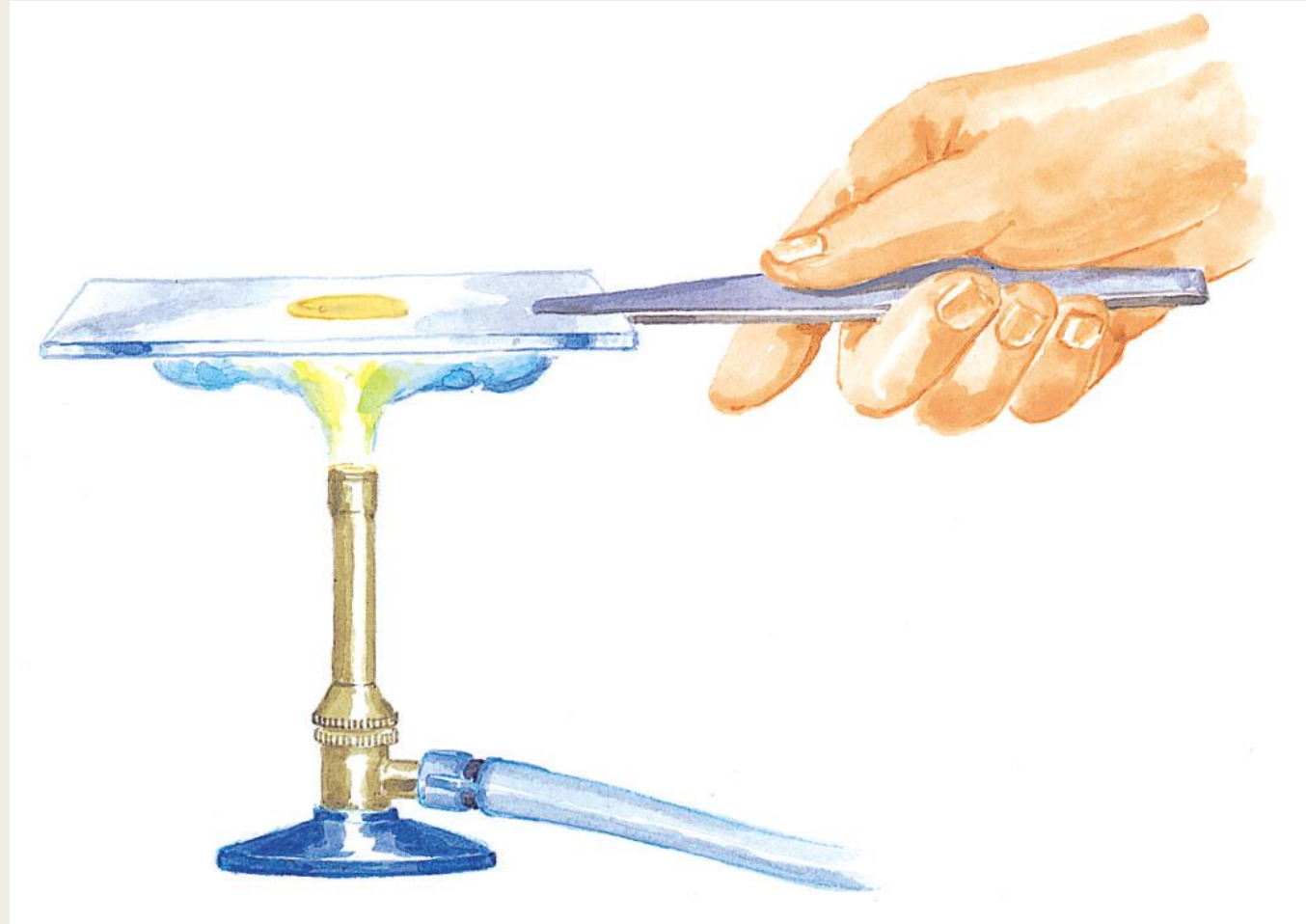
Pemberian nomor sediaan



Pembuatan sediaan dahak

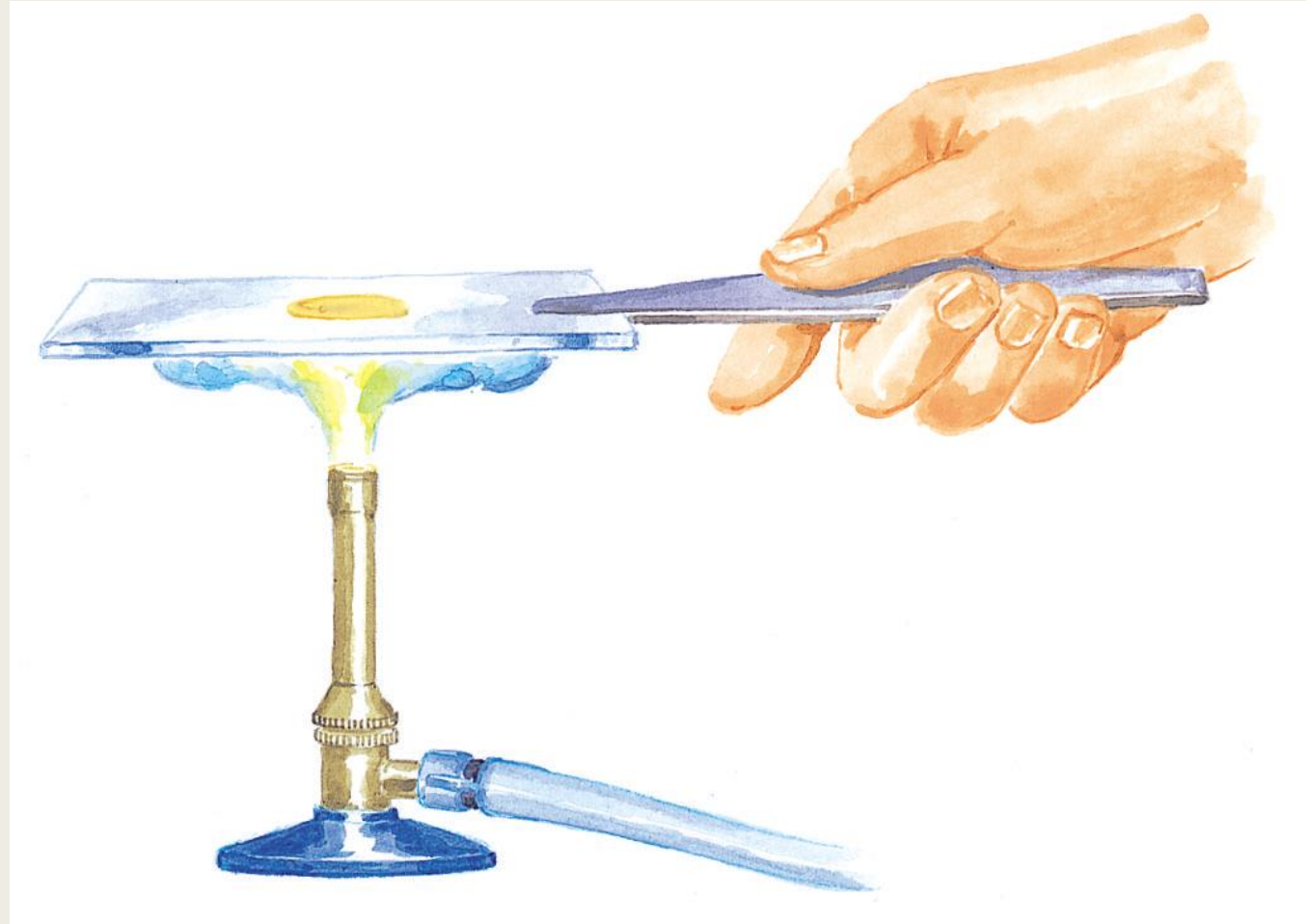


Fiksasi Sediaan Dahak

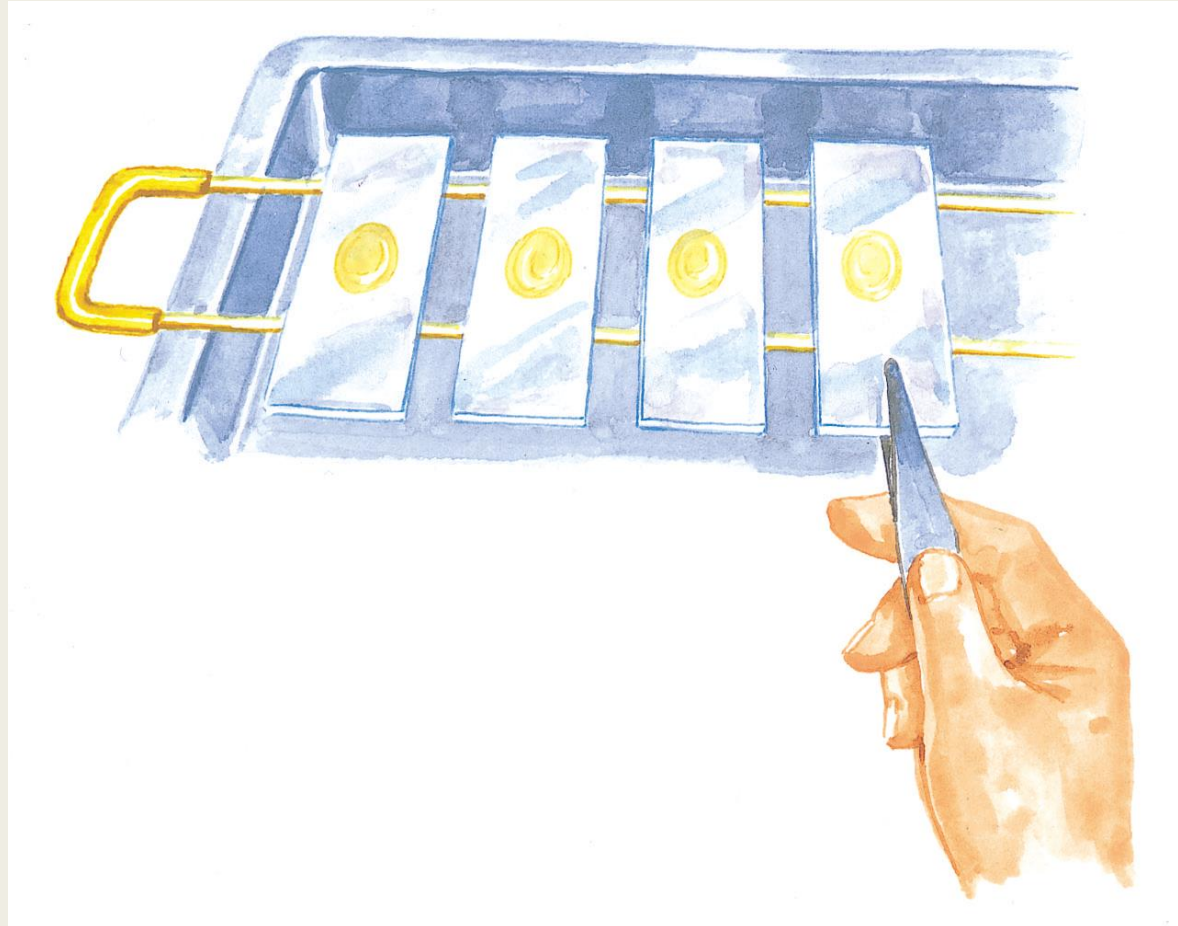


Pewarnaan Sediaan Dahak

Fiksasi Sediaan Dahak



Mengatur Sediaan

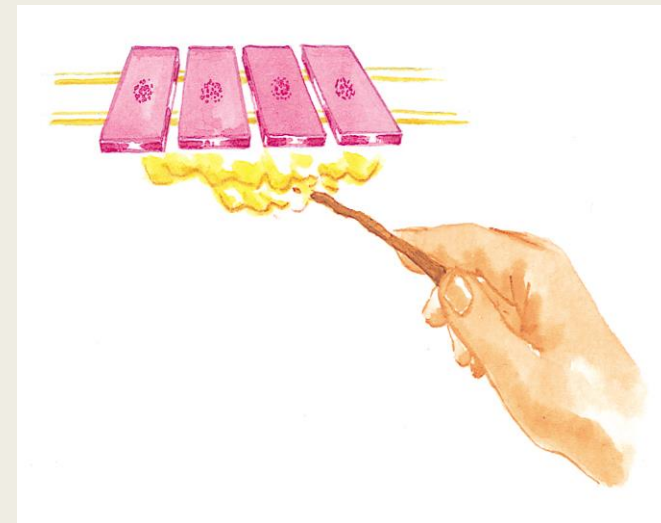
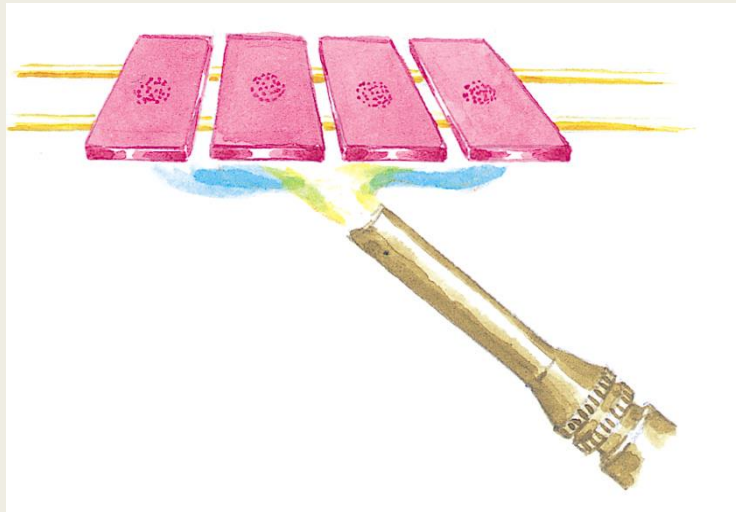


Genangi Sediaan Dengan Karbol Fuhsin

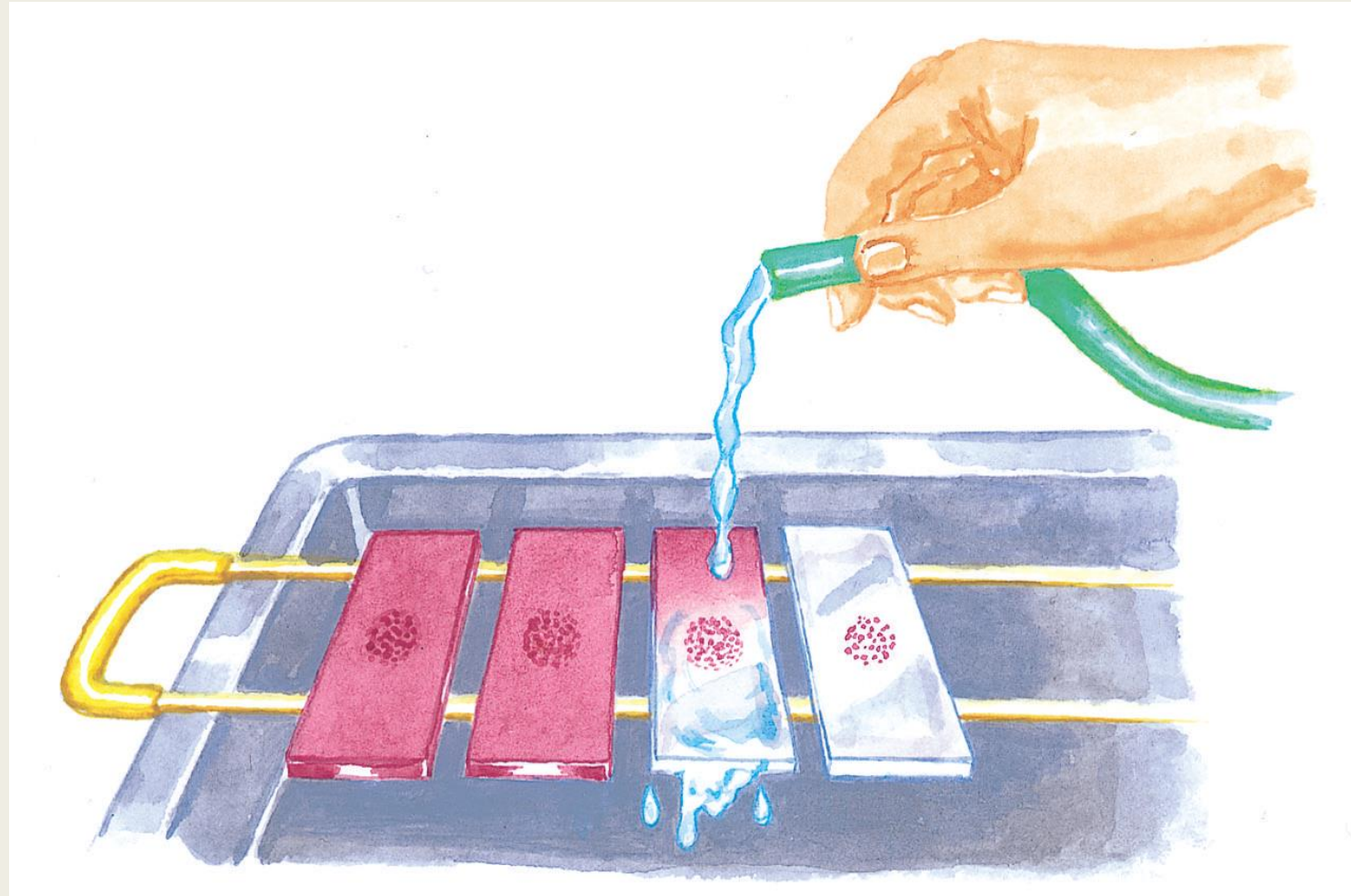




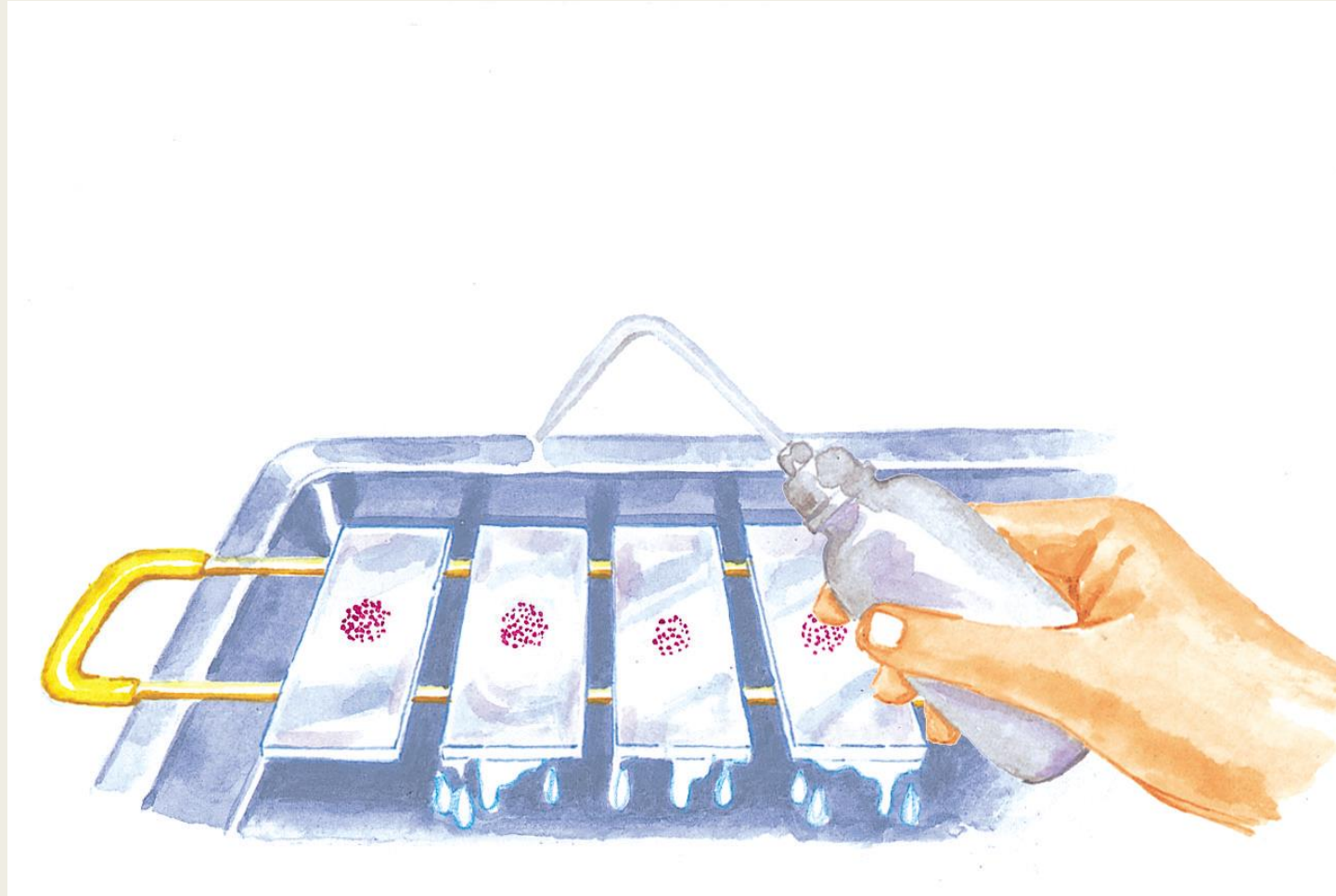
Pemanasan sediaan



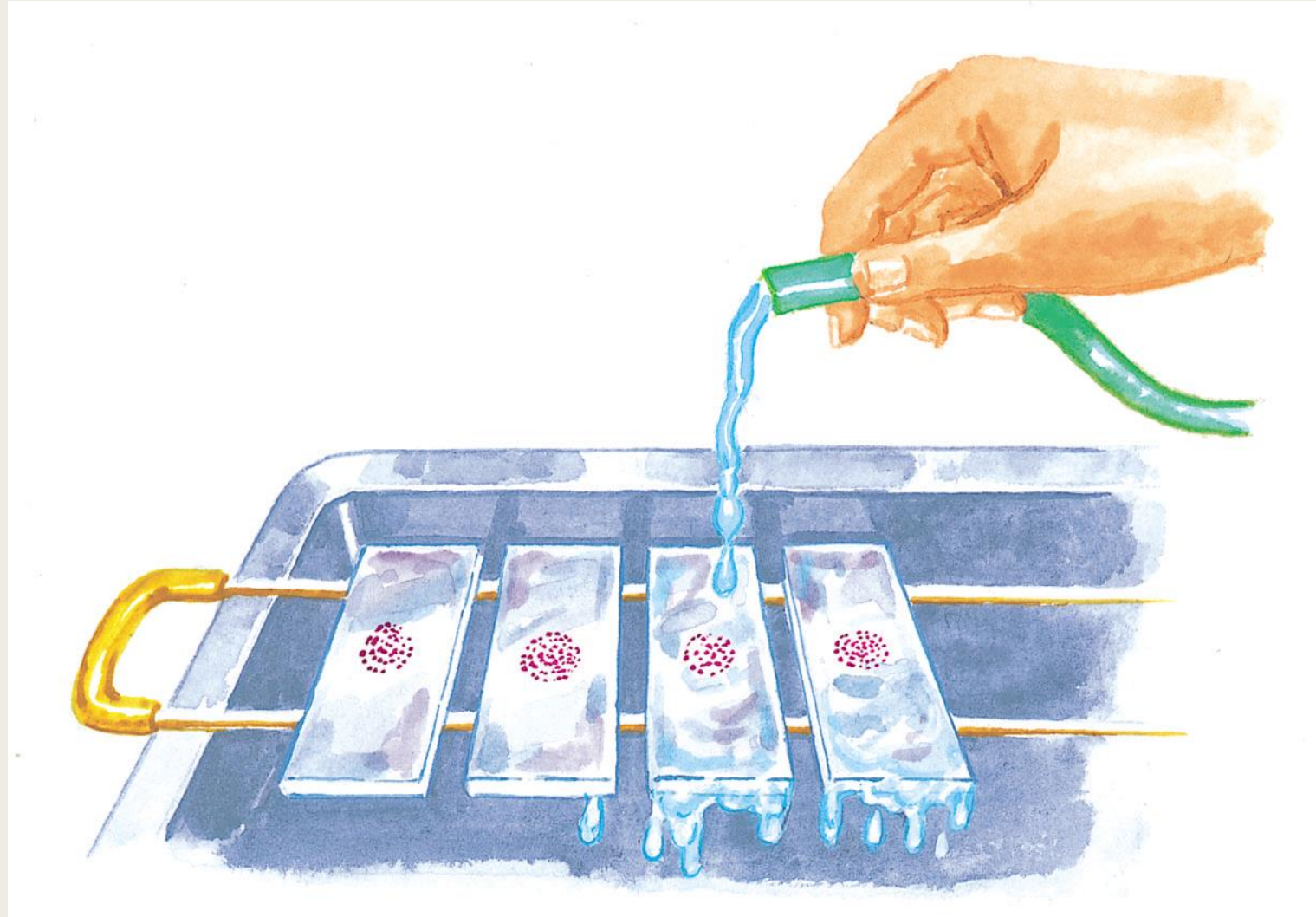
Pembilasan Sediaan



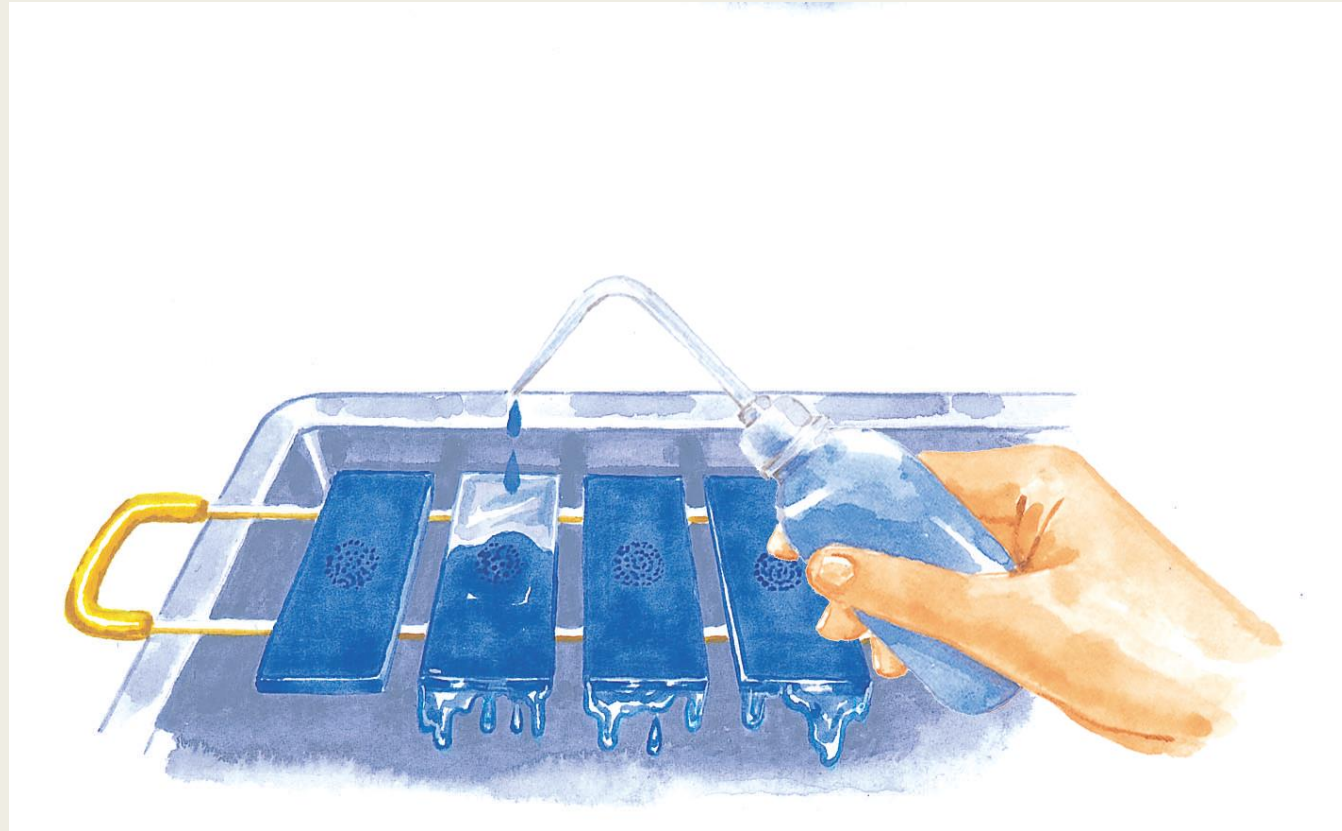
Dekolorisasi Dengan Asam Alkohol



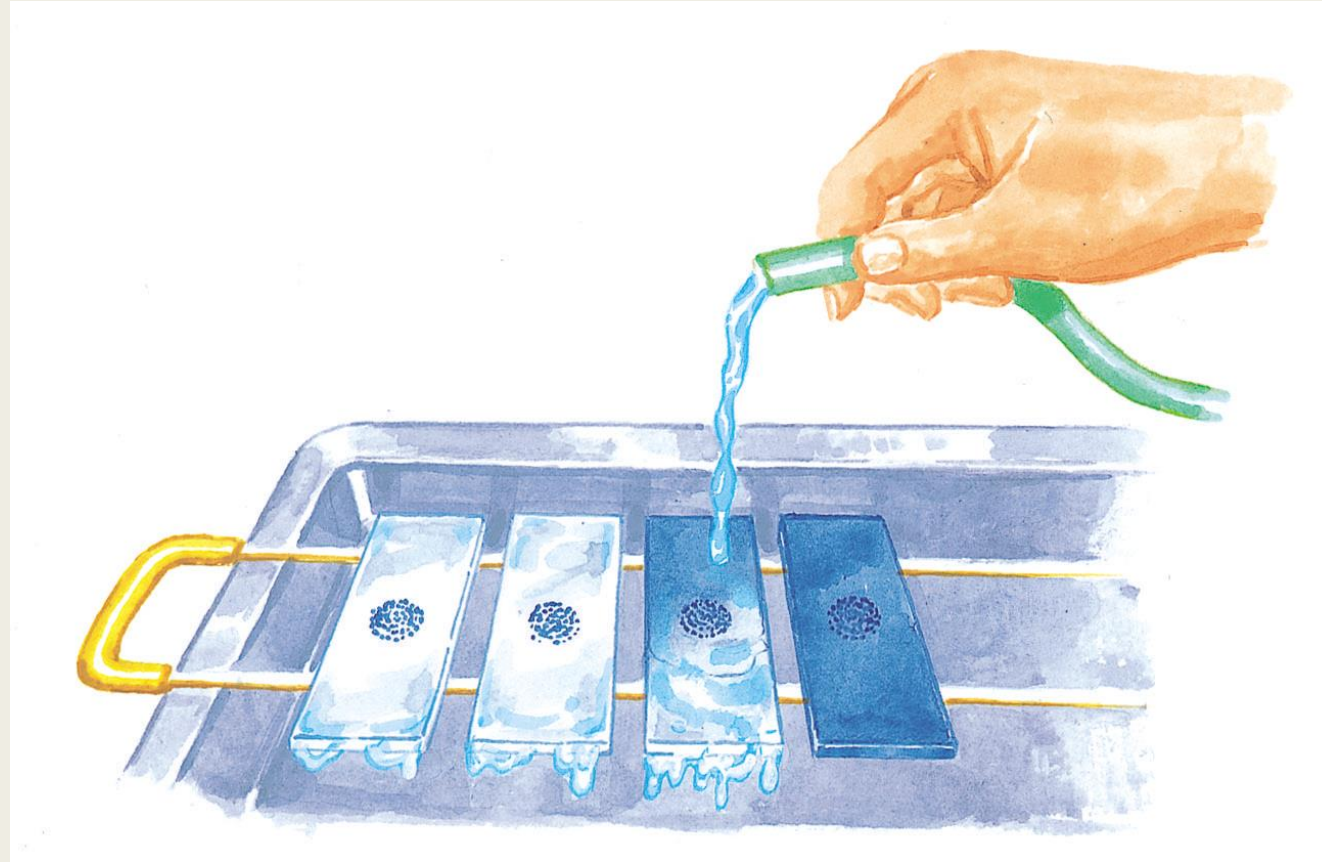
Pembilasan Sediaan Dengan Air Setelah Dekolorisasi



Pewarnaan Kontras dengan Metilen Biru



Pembilasan Setelah Pewarnaan Kontras



Pengeringan sediaan yang telah diwarnai



Penilaian Kualitas Sediaan Dahak

Sediaan Dahak

Ukuran

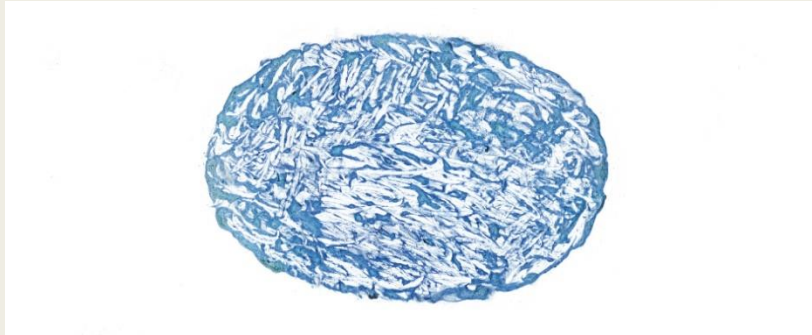


2 x 3 cm

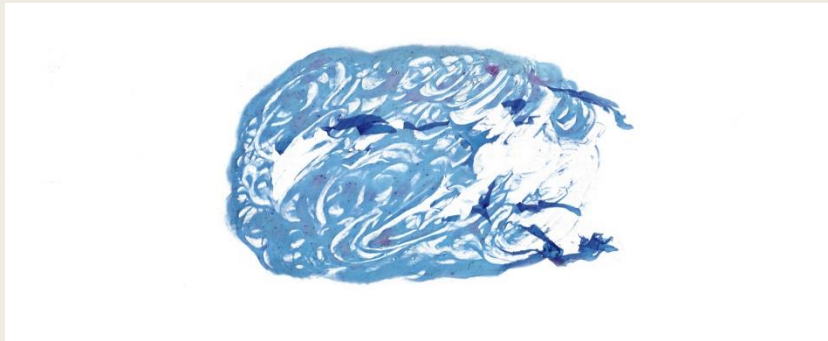


1 x 2 cm

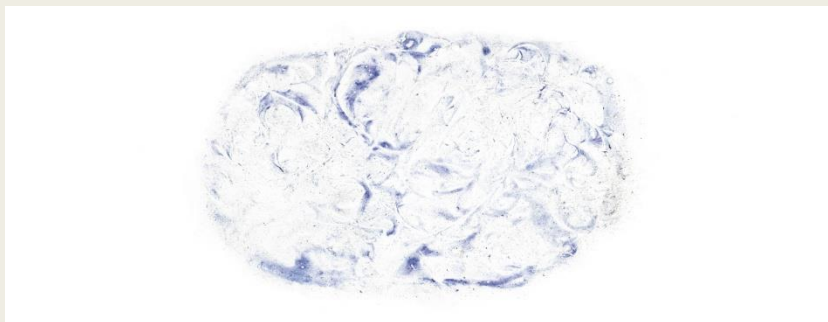
Kerataan



Baik

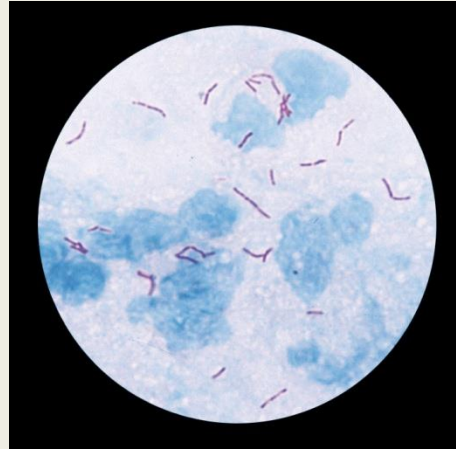


**Mengelupas/
terputus**

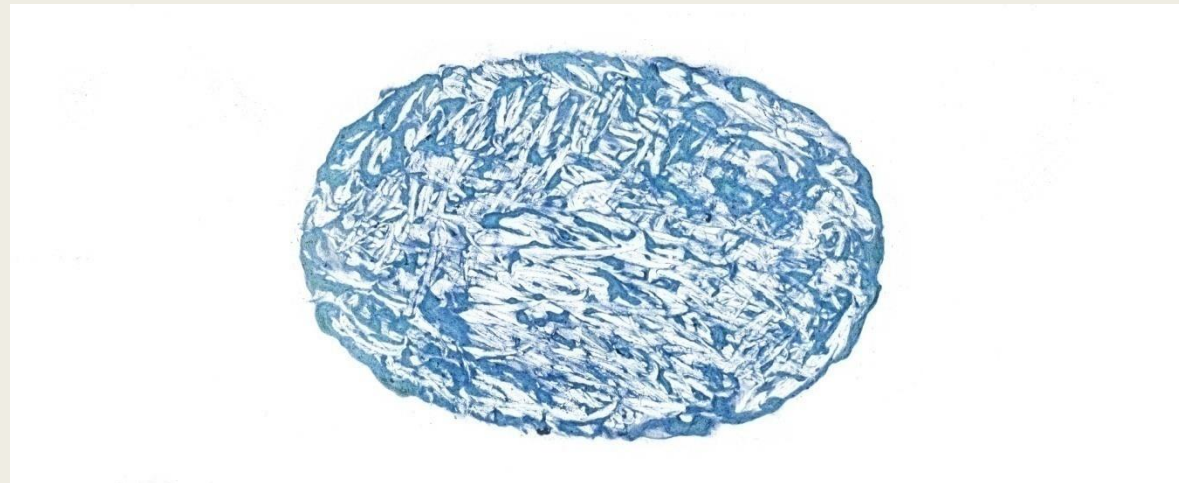


Tidak rata

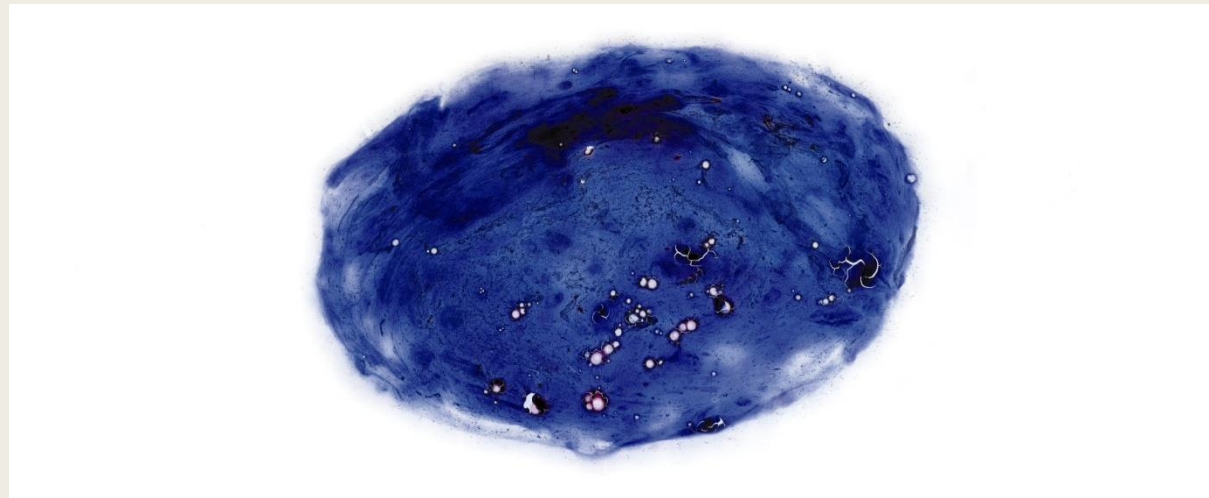
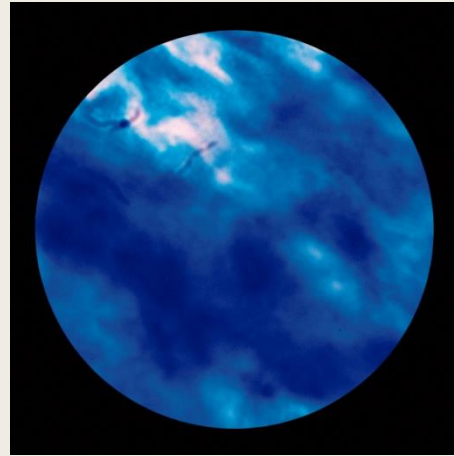
Ketebalan Sediaan



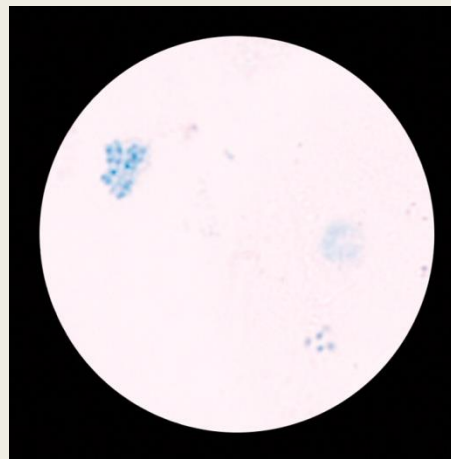
Baik



Terlalu Tebal



Terlalu Tipis



Sediaan dahak yang Baik

The Japanese pair, in second position behind Russian Anastasia Davydova and Anastasia Ermakova after Monday's technical routine and Tuesday's free-routine. In the preliminary, displayed finesse in a humorous "Japanese Doll" routine to receive

Jelek/terlalu tebal

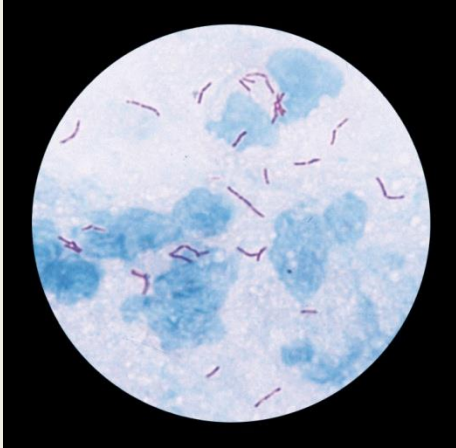
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Baik

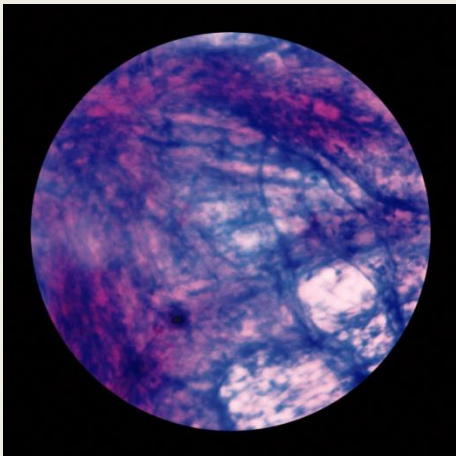
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Jelek/terlalu tipis

Memeriksa Dekolorisasi Pewarnaan

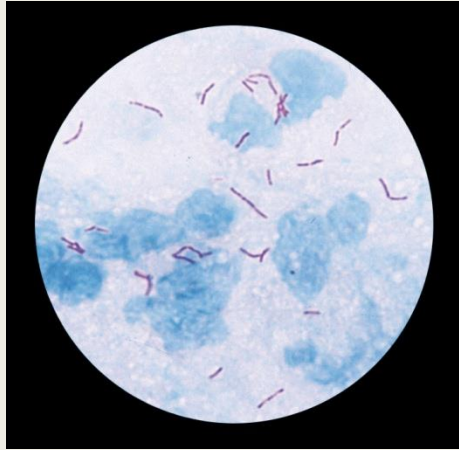


Baik

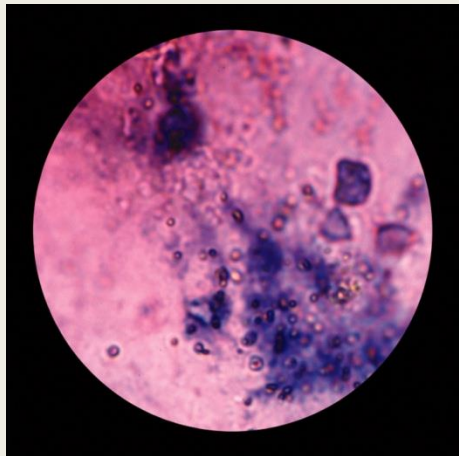


Dekolorisasi kurang

Kebersihan Sediaan



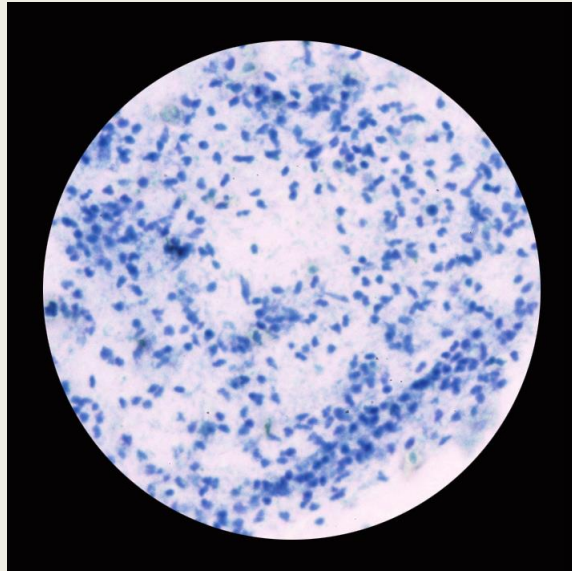
Baik



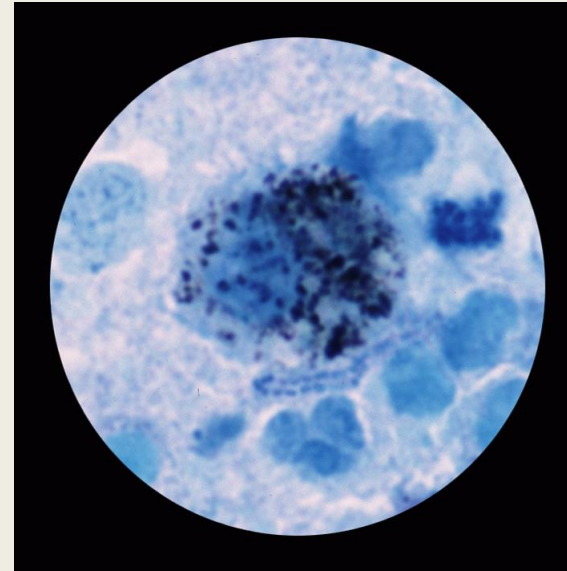
Terkotori Kristal

Pemeriksaan Mikroskopis

Penilaian Kualitas Dahak Secara Mikroskopis



Leukosit (100x)



Makrofag (1000x)

Bila ditemukan lebih dari 25 leukosit dalam satu lapang pandang pembesaran 100x atau adanya makrofag dalam satu lapang pandang pembesaran 1000x menunjukkan kualitas dahak yang baik

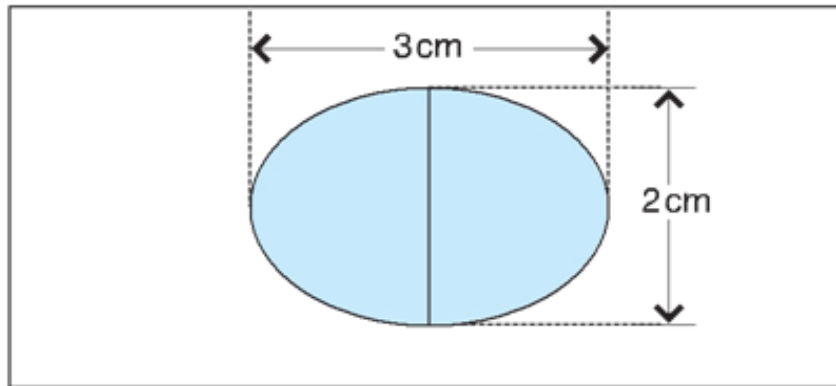
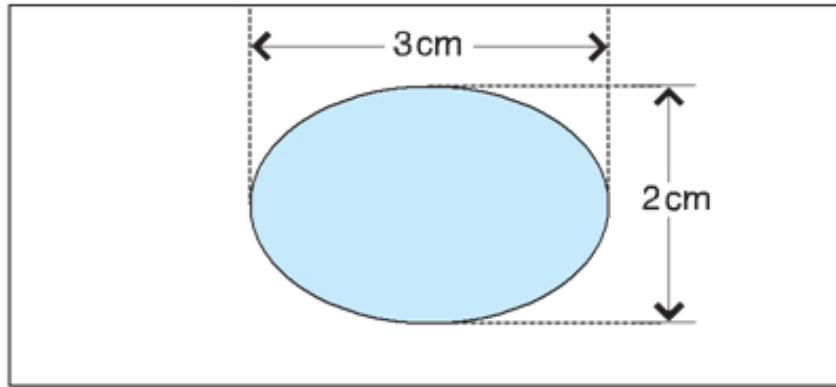
Penetesan minyak imersi





Pembacaan sediaan dahak

Pembacaan dan Pelaporan Sediaan Dahak



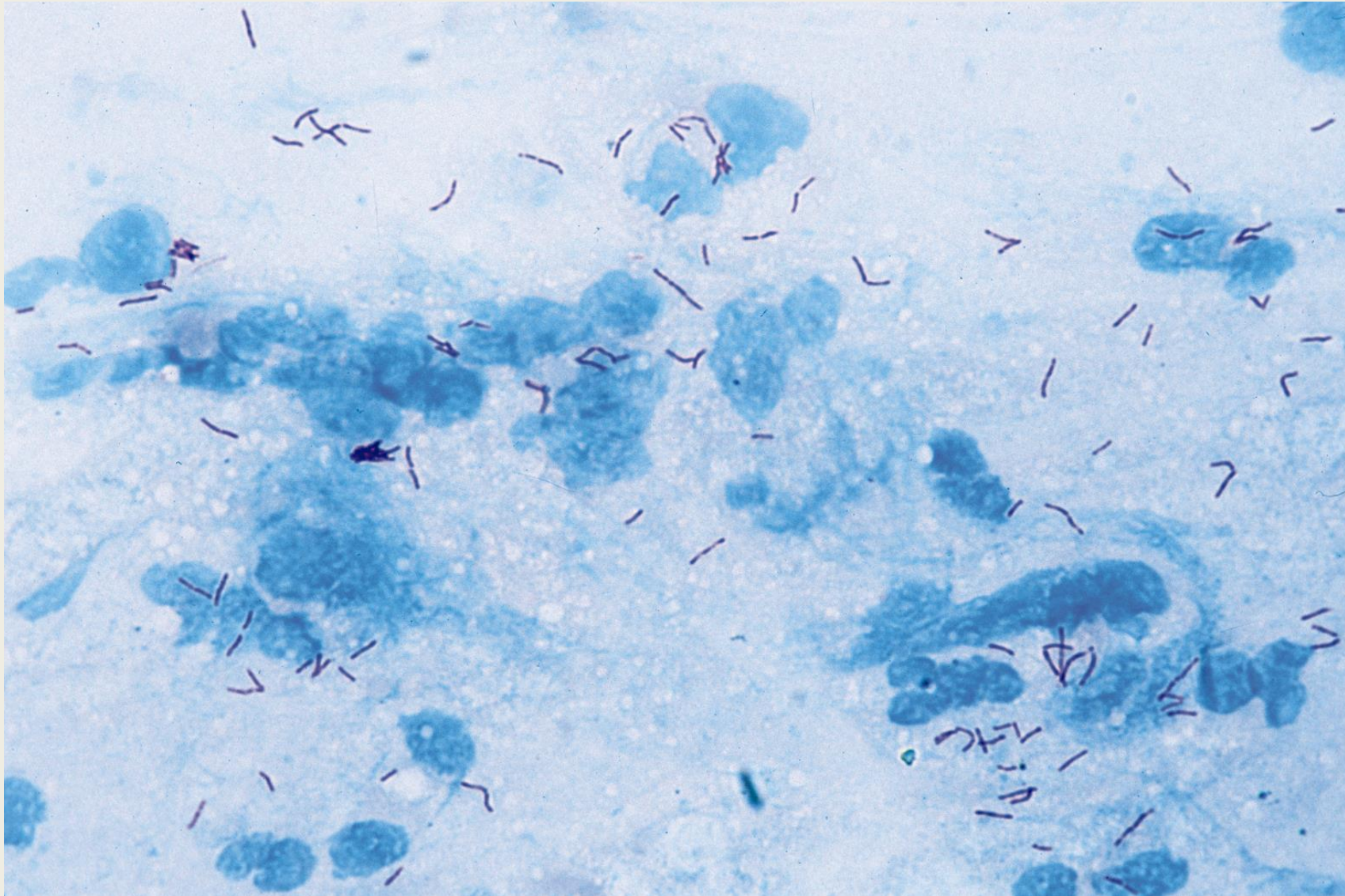
Bila sediaan dahak berukuran 2 X 3 cm, Satu (1) garis tengah horizontal ekuivalen dengan 150 lapang pandang, dan satu (1) garis tengah vertikal ekuivalen dengan 100 lapang pandang

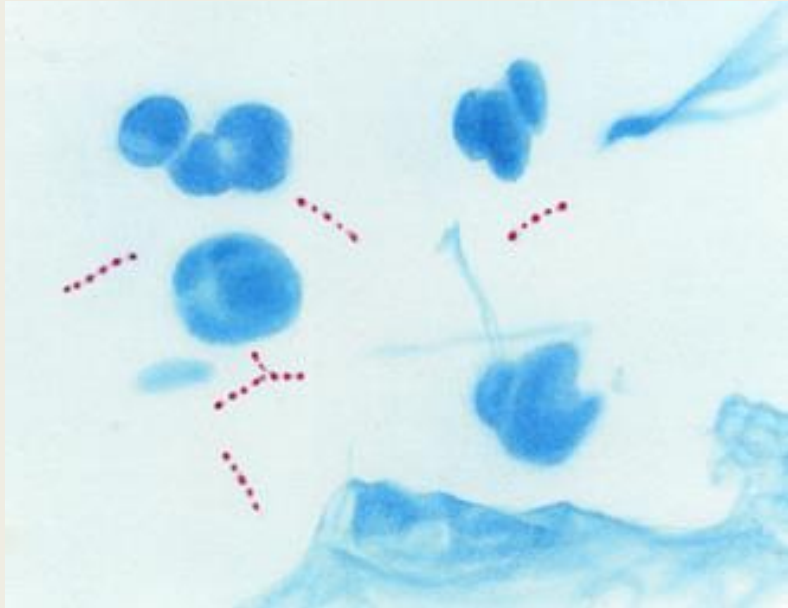
Skala Pelaporan (IUTLD)

International Union Against Tuberculosis and Lung Disease

- (-)** Tidak ditemukan BTA pada paling sedikit 100 LP
- (±)** Ditemukan 1-9 BTA / 100 LP (Scanty)
(Catat jumlah BTA yang ditemukan)
- (1+)** 10-99 BTA / 100 LP
- (2+)** 1-10 BTA / LP paling sedikit 50 LP
- (3+)** Lebih dari 10 BTA / LP paling sedikit 20 LP

Bila ditemukan BTA dengan jumlah rata-rata pada setiap lapang pandang lebih besar dari 10 sepanjang garis tengah horizontal atau paling sedikit dalam 20 lapang pandang, hentikan pembacaan dan laporkan sebagai (3+)







Pelaporan dan pencatatan hasil pemeriksaan mikroskopis



**Pembersihan sediaan
dari minyak imersi
sebelum disimpan**

