

UNLV

School of
**COMMUNITY
HEALTH SCIENCE**

Introduction to Pollen Identification

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Outline

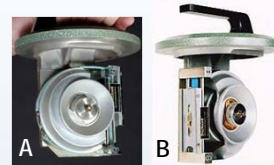
- Sample Collection
 - Air Sampler
 - Air Sampling
 - Sample Staining

- Pollen Identification
 - Pollen of Interest
 - Pollen Characteristics
 - 5 Common Pollen



Air Sampler

- Burkard recording volumetric spore trap
 - Impaction sampler
 - Efficient for small spores (mold)
- Key features
 - Wind-oriented
 - Sealed chamber with one orifice
 - Air flow rate: 10 L/min
 - 7-day or 24-hour sampling head
 - Clock revolves drum (A) or slide carriage (B) at 2 mm/hour

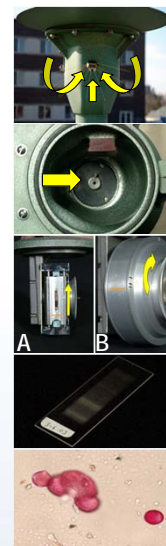


Air Sampling

- Air drawn through orifice into chamber
- Impact on to a sample surface
 - A. 24-hour head: greased slide
 - B. 7-day head: greased tape

Sample Staining

- Glycerin Jelly mounting medium containing basic fuchsin
 - Swell pollen grains
 - Dye outer layer of pollen grain wall into pink



Pollen

- A mass of microspores in a seed plant appearing usually as a fine dust that is transported by various means
 - “Sperm in plants”
- Large in quantity
- Small in size
- Variation in pollination mode
 - Anemophilous - wind
 - Entomophilous - insects
 - Amphiphilous - wind & insects



National Allergy Bureau

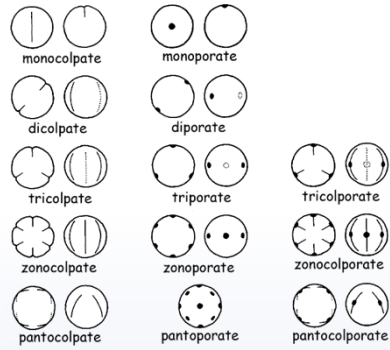
(<http://pollen.aaaai.org/nab/index.cfm?p=allergenreport&stationid=223>)

- Pollen
 - Category: tree, weed & grass
 - Various families and species
 - Allergenicity
- Pollen of interest
 - Allergenic
 - Wind-borne
 - Large quantities
 - Sufficient buoyant (10-50 μm)
 - Widely and abundantly distributed and close to humans



Pollen Characteristics

- Size (in μm)
- Shape
 - eg. circular, triangular
- Apertures
 - Colpus (colpate)
 - Pore (porate)
 - Both (colporate)
- Ornamentation
 - eg. air-bladder, spike

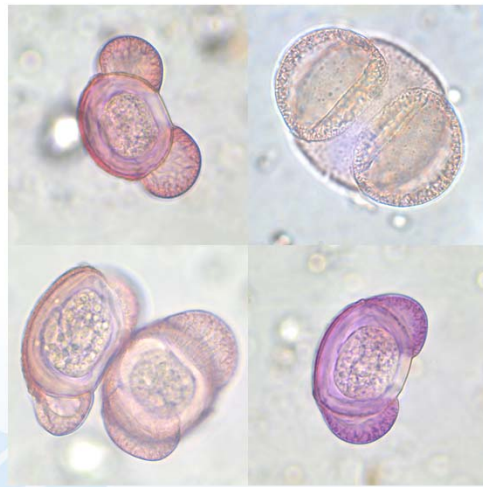


Lang, G., 1994: Quartäre Vegetationsgeschichte Europas. Gustav Fischer Verlag Jena, Stuttgart, New York: 462 S.

Tree - Pinus

- Common name:
 - Pine
- Pollination period:
 - Spring
- Size:
 - 50-150 μm
- Shape:
 - Bisaccate
 - "Mickey Mouse" head





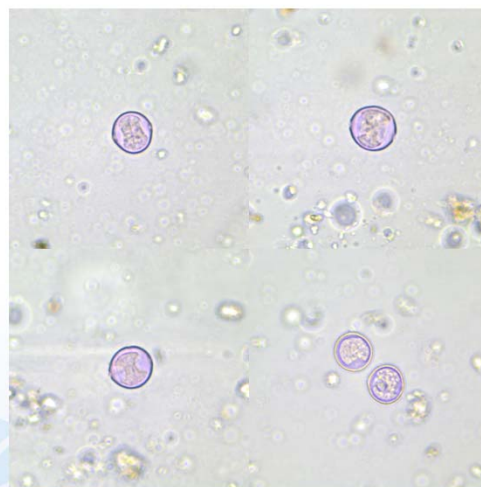
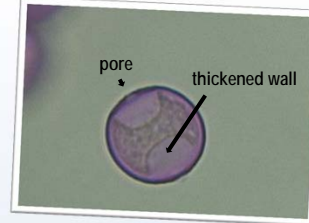
Pinus, 40X



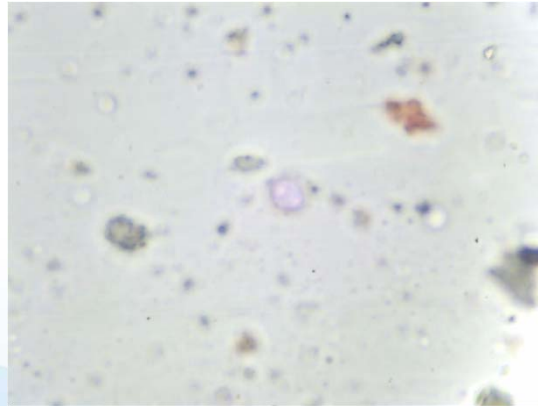
Pinus, 40X

Tree - Morus

- Common name:
 - Mulberry
- Pollination period:
 - Spring
- Size:
 - 14-22 μm
- Shape:
 - Circular
 - Diporate



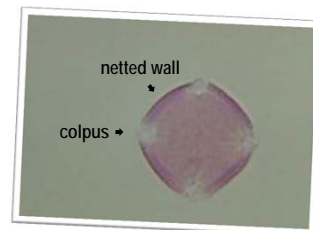
Morus, 40X

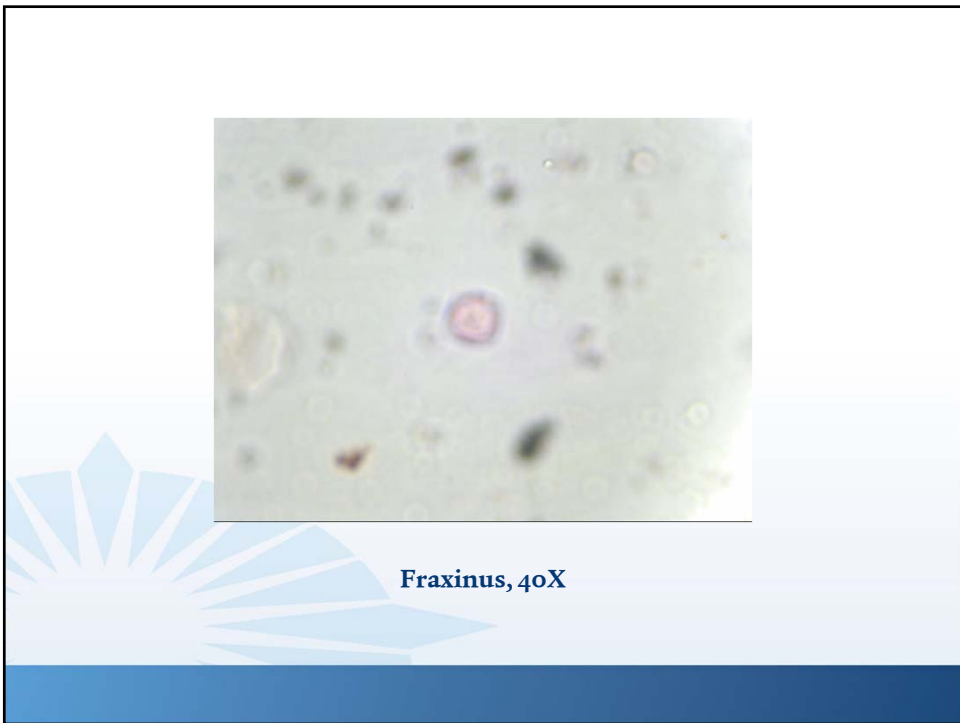
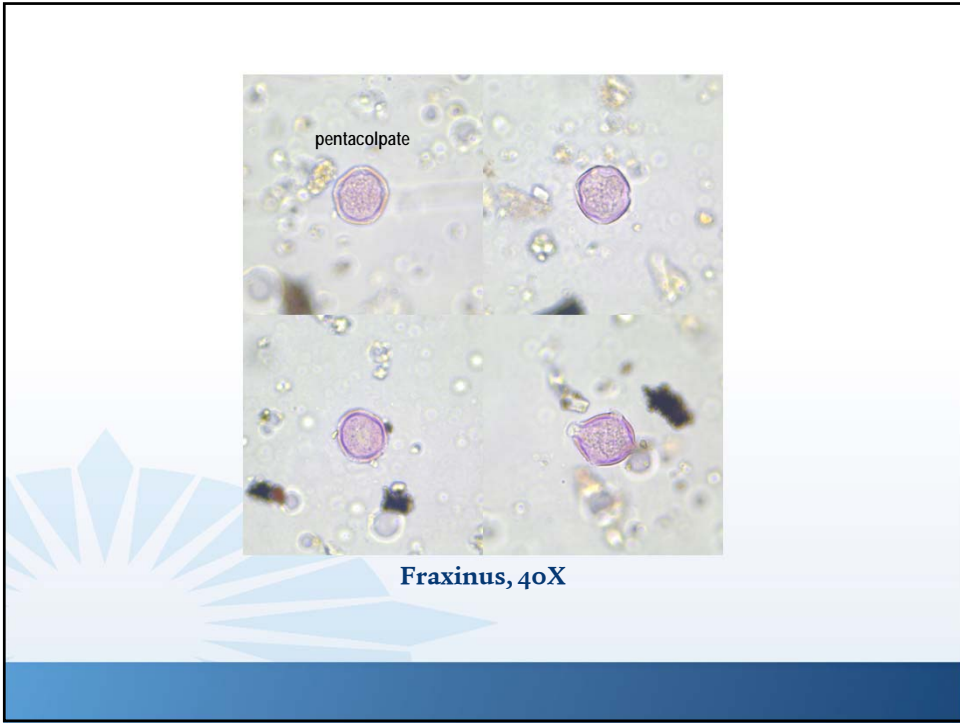


Morus, 40X

Tree - Fraxinus

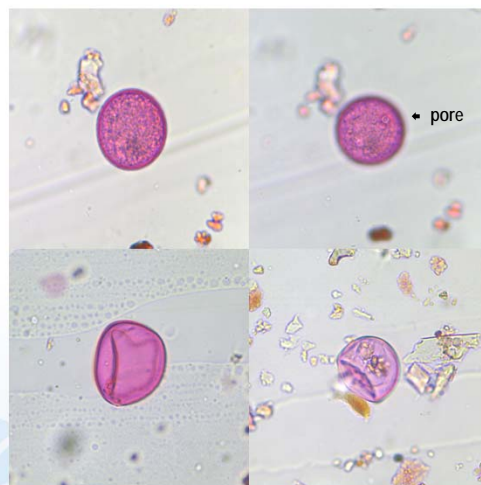
- Common name:
 - Ash
- Pollination period:
 - Spring
- Size:
 - 19-33 μm
- Shape:
 - Square
 - Tetracolpate, occasionally pentacolpate





Grass - Graminae/Poaceae

- Common name:
 - True grass, fescue, rye
- Pollination period:
 - Spring to summer
- Size:
 - 30-66 μm
- Shape:
 - Spheroidal
 - Monoporate



Graminae/Poaceae, 40X

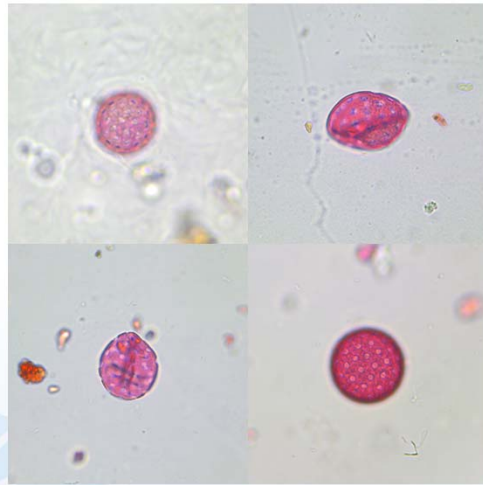


Graminae/Poaceae, 40X

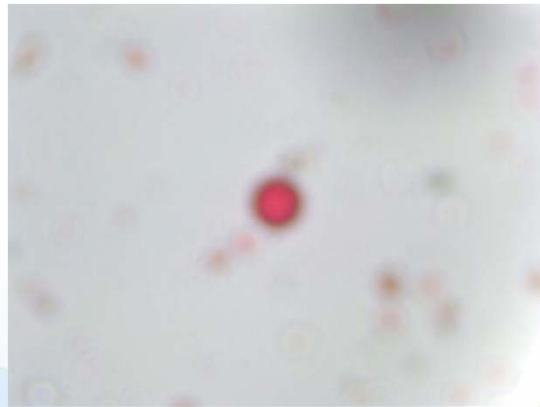
Weed - Chenopodiaceae/Amaranthaceae

- Common name:
 - Pigweed, goosefoot
- Pollination period:
 - Summer to fall
- Size:
 - 18-32 μm
- Shape:
 - Spheroidal
 - Pantoporate (20-60 pores)





Graminae/Poaceae, 40X



Graminae/Poaceae, 40X

Thank You

