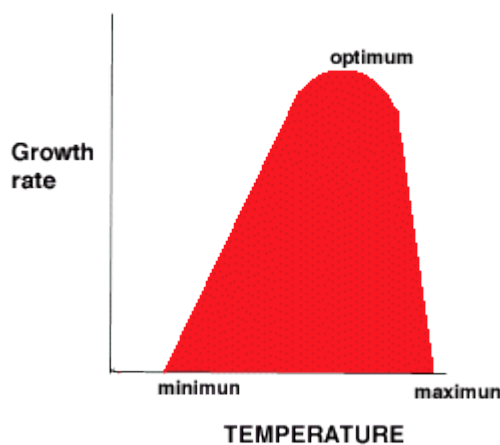


External factors that affect on fungal growth

a- Temperature and growth

Temperature affects the growth, germination of spores, reproduction and all vital activities .

There is a curve represents the relationship between growth and temperature-fungal, In this curve there a linear portion and which the growth increases with increasing temperature , There are optimum range , which is either a narrow or broad, and there are descending limb (landing stage) with a high increase of temperature .



Examples of the temperature of some fungi:

❖ *Phycomyces blakesleeanus*

Faster growth at a temperature of 20-25 c°, but the highest rate of growth occurs at a temperature of 10 c° With a limited level of thiamine, and the effect of temperature is often absent (wiped out) when the nitrogen level is limited .

❖ *Coprinus fimetarius*

Very weak(poorly) growth at a temperature of 44 c° due to failure of methionine biosynthesis but Provide methionine externally back normal growth .

❖ *Sclerotinia fructicola*

Optimum temperature linked with the pH of the culture .

❖ Temperature determining factor for the spread of some fungi in nature

- **Allomyces in Tropical regions**

- *Phymatotrichum omnivorum* in Cold regions
 - *Fusarium nivale* and *Typhula sp.* in snow molds
 - *Fhacidium infestans*
The optimum temperature of 15 c° has the ability to grow at temperatures -3 c° and infects pine.
 - *Cladosporium sp. sporotrichum sp.*
Causing spoilage refrigerator food , Grow at a temperature less than zero Up to -5 c°
- ❖ **Dermatophytic fungi :**
- *Tinea Capitis*
disease that affects the hair follicles in culture media
growth in temperature 25-35 c°
- ❖ **Systemic mycoses fungi :**
- *Aspergillus fumigates*
Cause tuberculosis disease in humans growth in temperature 37 c°
- ❖ **Wood-destroying fungi**
- *Serpula lacrymans*
has a preference for temperatures of 21 to 22 °C.
- ❖ **Thermophiles :**
- *Thermomyces lanuginous*
 - *Penicillium duponti*
 - *Thermoascus aurantiacus*
 - *Chaetomium thermophile*
growth in the temperature range of 30 to 58 °C.
- ❖ **Fungi that infect stored crops**
Prefer a plant that will be the same temperature for mycelium .
Wilt tomato disease often have the same pattern optimum temperature of the Fungal pathogen *Fusarium sp.*

Practical part

Experiment:

The effect of temperature on the growth of fungi

Tools

- Petri dishes contain Potato Dextrose Agar
- needles

Methods:

- Six dishes of the potato medium are inoculated with disc of fungi, then incubate each dish at a different temperature (5,10,28,37,42,55) for a period of 5-7 days, then the dishes are examined in terms of growth.
- The growth of fungi is estimated by estimating the linear growth in centimeters.
- Draw a curve showing the relationship between temperature and growth.