

The Koch School :-

Anthrax, a fatal disease of domestic sheep and cattle caused economic hardship for German farmers late in the nineteenth century.

The disease appeared sporadically among local flocks of sheep & herds of cattle without an apparent cause or source.

Before Koch began his work, there were indications anthrax was caused by a bacterium. Rod-shaped bacteria observed in the blood of the dead animals. One microbiologist had transfused fresh blood containing bacteria withdrawn from not demonstrated that the bacteria actually caused anthrax.

Robert Koch quickly ruled out using sheep or cattle as experimental animals in his study of anthrax because these animals were too expensive. He selected to work with mice, which were susceptible to anthrax and could be raised in his lab.

He took blood from inf. cell. - died of anthrax - injected it into a healthy mouse. Koch repeated it several times and each time mouse died of anthrax. Examinations revealed swollen spleens and presence of Bacilli in both spleen & blood.

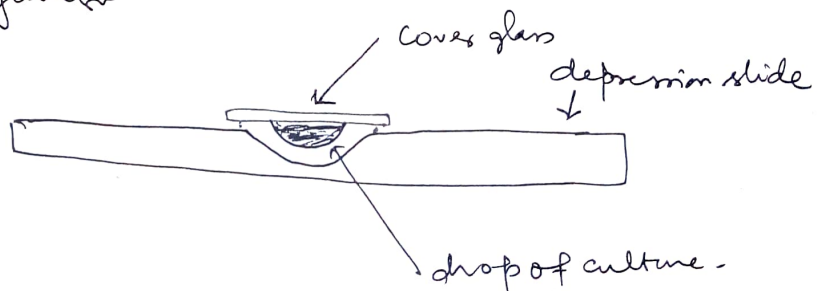
He tried to grow these Bacilli in various broths without success, he raised aqueous humor (liquid from eyeball) from the eye of a cow. He placed a drop of aq. humor on a thin glass coverslip and inoculated it with a piece of infected spleen. He inverted the coverslip over a depression slide to make a hanging drop preparation.

He observed Bacilli grow out from spleen tissue as veg. cells before many of them formed refractive spores. He inoculated a fresh drop. of aq. humor and observed their germination into veg. cells. Once he was able to grow the infectious agent of anthrax out side the animal host, Koch knew how to proceed.

He used as inoculation components and inoculated the spores into healthy mice; more spores he used - more quickly the mice died of anthrax. Once again Bacilli was recovered from the spleen and blood. These ex. in 1877, conclusively proved that microbes can cause infectious disease.

Finally, in 1884 Koch summarized his method of proving that a microbe is the causative agent of infectious diseases, a method known as Koch's Postulates :-

1. The microorganisms must be demonstrable in all cases of the disease.
2. The microorganisms must be ^{isolated} from the diseased animal and grown in pure culture.
3. Microorganisms from this pure culture must cause the same disease when inoculated into a healthy animal.
4. Experimentally infected animal must contain microorganism.



By this time, R. Koch was recognised as leader of German School of microbiology in Berlin.