

Diseases caused by Microorganisms

Table 7.1. Bacterial diseases in human beings

| S. No | Diseases | Causative agent | Site of infection | Mode of transmission | Symptoms |
|-------|--------------------------------------|------------------------------------|---|---|--|
| 1 | Shigellosis (Bacillary dysentery) | <i>Shigella sp.</i> | Intestine | Food and water contaminated by faeces / faecal oral route | Abdominal pain, dehydration, blood and mucus in the stools |
| 2 | Bubonic plague (Black death) | <i>Yersinia pestis</i> | Lymph nodes | Rat flea vector- <i>Xenopsylla cheopis</i> | Fever, headache, and swollen lymph nodes |
| 3 | Diphtheria | <i>Corynebacterium diphtheriae</i> | Larynx, skin, nasal and genital passage | Droplet infection | Fever, sore throat, hoarseness and difficulty in breathing |
| 4 | Cholera | <i>Vibrio cholerae</i> | Intestine | Contaminated food and water/ faecal oral route | Severe diarrhoea and dehydration |
| 5 | Tetanus (Lock jaw) | <i>Clostridium tetani</i> | Spasm of muscles | Through wound infection | Rigidity of jaw muscle, increased heart beat rate and spasm of the muscles of the jaw and face |
| 6 | Typhoid (Enteric fever) | <i>Salmonella typhi</i> | Intestine | Through contaminated food and water | Headache, abdominal discomfort, fever and diarrhoea |
| 7 | Pneumonia | <i>Streptococcus pneumoniae</i> | Lungs | Droplet infection | Fever, cough, painful breathing and brown sputum |
| 8 | Tuberculosis | <i>Mycobacterium tuberculosis</i> | Lungs | Droplet infection | Thick mucopurulent nasal discharge |

Table: 7.2 Viral diseases in human beings

| S. No | Diseases | Causative agent | Site of infection | Mode of transmission | Symptoms |
|-------|---------------------------------|---|--|---|---|
| 1 | Common cold | <i>Rhino viruses</i> | Respiratory tract | Droplet infection | Nasal congestion and discharge, sore throat, cough and headache |
| 2 | Mumps | <i>Mumps virus (RNA virus)</i> <i>Paramyxo virus</i> | Salivary glands | Saliva and droplet infection | Enlargement of the parotid glands |
| 3 | Measles | <i>Rubella virus (RNA virus)</i> , <i>Paramyxo virus</i> | Skin and respiratory tract | Droplet infection | Sore throat, running nose, cough and fever. reddish rashes on the skin, neck and ears. |
| 4 | Viral hepatitis | <i>Hepatitis - B virus</i> | Liver | Parenteral route, blood transfusion | Liver damage, jaundice, nausea, yellowish eyes, fever and pain in the abdomen |
| 5 | Chicken pox | <i>Varicella -Zoster virus (DNA Virus)</i> | Respiratory tract, skin and nervous system | Droplet infection and direct contact | Mild fever with itchy skin, rash and blisters |
| 6 | Poliomyelitis | <i>Polio virus (RNA virus)</i> | Intestine, brain, spinal cord | Droplet infection through faecal oral route | Fever, muscular stiffness and weakness, paralysis and respiratory failure |
| 7 | Dengue fever (Break bone fever) | <i>Dengue virus or Flavi virus (DENV 1-4 virus)</i> | Skin and blood | Mosquito vector <i>Aedes aegypti</i> | Severe flu like illness with a sudden onset of fever and painful headache, muscle and joint pain. |
| 8 | Chikungunya | <i>Alpha virus (Toga virus)</i> | Nervous system | Mosquito vector <i>Aedes aegypti</i> | Fever and joint pain, headache and joint swelling |

HIV- Retrovirus
Covid19-Coronavirus

Disease caused by protozoa to human beings

| Disease | Casual agents | Organs affected | vector |
|-------------------------------|-----------------------|-----------------------------------|------------------------|
| 1. Amoebiasis | Entamoeba histolytica | Intestine, Liver | Water |
| 2.African Sleeping Sickness | Trypanosoma brucei | Blood, Brain | Tsetse fly (Glossina) |
| 3.Leishmaniasis (Kala - azar) | Leishmania donovani | White Blood Cells,Skin, Intestine | Sand fly (Phlebotomus) |
| 4.Malaria | Plasmodium spp. | Liver, Red Blood Cells | Mosquito (anopheles) |
| 5. Babesiosis | Babesia microti | Red Blood Cells | Tick (Ixodes) |

TABLE 28-2 Summary of Human Fungal Diseases

| Disease | Symptoms | Fungus | Route of transmission |
|--------------------------|---|---|---|
| Athlete's foot | fluid-filled blisters, scaly skin, itching | <i>Trichophyton</i> species (Ascomycete) or <i>Epidermophyton</i> species | contact with skin lesions or contaminated floors |
| Ringworm | ring-shaped skin lesions | <i>Microsporum</i> , <i>Trichophyton</i> (Ascomycetes) | contact with skin lesions, contaminated floors, or contaminated objects |
| Tinea cruris (jock itch) | intense itching, ring-shaped lesions | <i>Microsporum</i> , <i>Trichophyton</i> (Ascomycetes) | contact with skin lesions, contaminated floors, or contaminated objects |
| Histoplasmosis | fever, chills, headache, body aches, chest pains, nonproductive cough | <i>Histoplasma capsulatum</i> (Ascomycete) | inhalation of airborne conidia |

Table 1.8: Plant diseases caused by Bacteria

| S.No. | Name of the Host | Name of the disease | Name of the pathogen |
|-------|------------------|---------------------|--|
| 1 | Rice | Bacterial blight | <i>Xanthomonas oryzae</i> |
| 2 | Apple | Fire blight | <i>Erwinia amylovora</i> |
| 3 | Carrot | Soft rot | <i>Erwinia caratovora</i> |
| 4 | Citrus | Citrus canker | <i>Xanthomonas citri</i> |
| 5 | Cotton | Angular leaf spot | <i>Xanthomonas malvacearum</i> |
| 6 | Potato | Ring rot | <i>Clavibacter michiganensis</i> subsp. <i>sepedonicus</i> |
| 7 | Potato | Scab | <i>Streptomyces scabies</i> |

| Fungal pathogens | Disease | Crops |
|---|--------------------|----------------|
| <i>Alternaria triticina</i> | Leaf blight | Wheat |
| <i>Fusarium oxysporum</i> f. sp. <i>lycopersici</i> | Fusarium wilt | Tomato |
| <i>Rhizoctonia solani</i> | Sheath blight | Rice |
| <i>Sclerotium rolfsii</i> | Wilt | Potato |
| <i>Pythiumaphani dermatum</i> | Damping off | Tomato |
| <i>Sclerotinia sclerotiorum</i> | Head rot | Sunflower |
| <i>Alternaria solani</i> | Early blight | tomato, potato |
| <i>Alternaria alternate</i> f. sp. <i>lycopersici</i> | Early blight | Tomato |
| <i>Ceratocystis paradoxa</i> | Pine apple disease | Sugarcane |
| <i>Phytophthora infestans</i> | Late blight | Potato |

Viral diseases in Plants

- 1 *Tobacco mosaic virus (TMV)*
- 2 *Tomato spotted wilt virus (TSWV)*
- 3 *Tomato yellow leaf curl virus (TYLCV)*
- 4 *Cucumber mosaic virus (CMV)*
- 5 *Potato virus Y (PVY)*
- 6 *Cauliflower mosaic virus (CaMV)*
- 7 *African cassava mosaic virus (ACMV)*
- 8 *Plum pox virus (PPV)*
- 9 *Brome mosaic virus (BMV)*
- 10 *Potato virus X (PVX)*