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Clay minerals and clayey soils as possible microorganisms repository

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Clay minerals are one of the most abundant and crucial structural materials of the Earth's crust playing a significant role in different aspects of human life. This paper critically discusses the presence of microorganisms within different clayey soils. Microorganisms are omnipresent by nature due to their natural ability to adapt in different habitats. Bacteria and Archea are the most abundant microorganisms in the soil and serve many important roles like nitrogen fixation. Fungi are also an integral part of the soil microflora catering other organisms as food sources and facilitating as layer organism and beneficial relationships with plants and other organisms. The continued evolution of man and subsequent application of clayey soils in areas such as pottery, cosmetics, engineering and geophagia, leads to the question of man's health safety due to the fact that some microorganisms are harmful. Clayey soils with a high amount of fine particles and colloidal substance were studied. Their aluminosilicates composition and their roles in biodiversity were assessed. This paper will also discuss the possible microorganisms flora types associated with each clayey soil type studied as well as their functions within the human body. Considering the diverse origin of these microorganisms, their modes of attachment to clayey soils with the aim of minimising their transmission to human beings will be discussed.

