 * Archaebacteria. By :- Aniket Bhardwaj and Gaurav

* Introduction :- Archaebacteria are known to be the oldest living organisms on Earth.

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⇒ They belong to the kingdom Archaea and are classified as bacteria, because they resemble Bacteria when observed under a microscope.

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⇒ They are completely distinct from Prokaryotes.

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⇒ They share slightly common characteristics with the eukaryotes.

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⇒ These can easily survive under very harsh conditions, such as the bottom of the sea and the volcanic vents and are thus known as "Extremophiles."

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⇒ * Characteristic features of Archaebacteria :- The following are the important characteristics of Archaebacteria :-

i.) Archaebacteria are obligate anaerobes, i.e. they flourish in the strict absence of oxygen, and i.e only they can undergo methanogenesis.

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ii.) The cell membranes of the Archaebacteria are composed of lipids.

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iii.) The rigid cell wall provides shape and support to the Archaebacteria.

iv.) => It also protects the cell from bursting under Hypotonic ~~soln~~ Conditions.

v.) => The cell wall is composed of Pseudomurein, which prevents archaebacteria from the effects of Lysozyme.

=> Lysozyme is an enzyme released by the immune system of the host, which dissolves the cell-wall of pathogenic-Bacteria.

vi.) These do not possess membrane-bound organelles such as nuclei, ER, mitochondria, Lysosomes or chloroplast.

=> It's thick cytoplasm Contains all the Compounds required for nutrition and metabolism.

vii.) They can live in a variety of environments and are called "Extremophiles."

viii.) They can survive in acidic and alkaline-aquatic regions, and also in temp. above Boiling point.

ix.) They can withstand a very high pressure of more than 200 atmospheres.

x.) Archaebacteria are indifferent towards major antibiotics, because they contain plasmids which have antibiotic resistance enzymes.

xi.) The mode of Reproduction is Asexual, known as "Binary fission."

xii.) They perform unique Gene transcription.

xiii.) The differences in their ribosomal RNA suggest that they diverge from both Prokaryotes and Eukaryotes.