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Editorial note on Chemistry of Petroleum Hydrocarbon Degrading Bacteria

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Petroleum oil is a significant and key asset for which all the nations contend savagely. Anthropogenic activity is dependent on oil to fulfill its energy need, which makes the petrochemical business to thrive. Due to the close proximity to the naturally occurring petroleum products in the environment, the petroleum hydrocarbon degrading has evolved.

Most oil hydrocarbon experienced in climate are eventually degraded by native microscopic organisms due to their high energy and carbon needs or development and creation just as prerequisite to mitigate physiological pressure brought about by the presence of oil hydrocarbon debasing in the microbial mass climate.

The degradation pathway of variety of petroleum hydrocarbon (eg; **aliphatics and polyacromatics**) has been shown to employ oxidizing reaction.

For example, metabolization of specific alkanes is done by some bacteria, while break down of aromatic and resin fractions of hydrocarbns is done by other bacteria.

PHC degrading b The degradation pathway of variety of petroleum hydrocarbon (eg; aliphatics and polyacromatics) have been shown to employ oxidizing reaction.

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PHC degrading bacteria: Aliphatics-> •Pseudomonas species (n alkanes)

•Rhodococcus ruber (n alkanes)

•Alcanivorx sp.(n alkanes)

Aromatics ->

•Achromobacter xylosoxidans (monochromatics)

•Mycobacterium cosmeticum(monochromatic)

•Bacillus sp. (polyacromatics)

•Sphingomonas sp. (polyacromatics)

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Toxic Impact of PHC:- The harm that oil pollutants causes to the ecological environment is well known (.Deep water horizon oil spill accident in the Gulf of Mexico) .

Sometimes strong toxic impact of PHC on affected microbial communities and are the greatest negative effects were observed in the Gasoline polluted sandy soil. Several studies have also reported that certain metabolic intermediates with relatively high solubility produced from the degradation of PHC.

Many environmental factors such as temperature, nutrients, electron acceptor and substrates play a vital role in bioremediation and influence biodegradation reactions.

Extremely high level of petroleum hydrocarbon strongly inhibits bacterial growth, results in poor biodegradation efficiency and even death of the bacteria.