

Molecules That Will Change the Future

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Climate change caused by greenhouse gases by producing more than 80 percent of the global energy from fossil fuels, which is associated with a large amount of greenhouse gases, regulations and limitations on non-renewable fossil fuels consumptions, and exponential increase in energy demand are the major challenges for today's industrial communities. The consumption rate of nitrogenous nutrients is higher than the population growth. Moreover, one to two percent of the energy consumption and three to five percent of the natural gas production in the world are allocated to the Haber-Bosch process to produce ammonia being the only nitrogenous nutrient source in agriculture. Furthermore, limitations and decreases in sweet water resources along with the increases in population and global warming are serious concerns and challenges. The source of all these challenges lie in the molecules found in nature that make up the important processes of the life-cycle and of photosynthesis, such as water, methane, carbon dioxide, ammonia, oxygen, nitrogen and hydrogen. In this work, research and technology-based approaches and strategies have been presented to overcome these challenges in the future by introducing the standing and role of each of these seven crucial molecules that affect the above challenges.

Keywords: Water, Methane, Carbon Dioxide, Ammonia, Oxygen, Nitrogen, Hydrogen, Haber-Bosch Process, Energy, Fossil Fuels, Greenhouse Gases, Photosynthesis, Photothermal

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