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New approach to soil health management and air quality: One Earth One Life

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The air pollution with fine particulate matter (PM) of dimension 2.5 μm or less (PM_{2.5}) causes lung and other diseases. The problem of prevention of water and terrestrial systems pollution with PM dry deposits is multifaceted. The ionized O₂ is capable to intensify the atmosphere turbulence, PM_{2.5} coalescence, and increasing the PM dry deposition velocity. Unfortunately, outdated environmental technologies are incapable to secure this. The quality of air is linked to the pedosphere and plant kingdom. Addressing the problem of environmental quality, including the PM_{2.5} content reduction in the atmosphere, the Biogeosystem Technique (BGT*) transcendental (nonstandard and not a direct imitation of Nature) methodology has been developed. The BGT* focus is an enrichment of the Earth's biogeochemical cycle. The heuristic approach to land use and air cleaning is a new niche for development to improve the soil system and ensure a high rate of air cleaning. BGT* ingredients are the intra-soil processing, which provides the soil multilevel architecture; intra-soil pulse continuously discrete watering for optimal soil water regime and freshwater saving up to 10-20 times; intra-soil dispersed environmentally safe recycling of the PM sediments and other pollutants; controlled microbial community and biofilm-mediated interactions in the soil. BGT* enriches the biogeochemical cycle, provides a better function of the humic substances, biological preparation and microbial biofilms as a soil-biological starter, priority plant and trees nutrition. BGT* methodology is capable to increase plant resistance to phytopathogens. BGT* provides the formation of higher underground and aboveground biological products, thus increasing reversible C biological sequestration from the atmosphere in the form of additional aboveground biomass and soil organic matter. BGT* provides a higher rate photosynthetic production of light O₂ ions, a coalescence of PM_{2.5}, PM_{0.1} to the PM₁₀ and larger particles, sedimentation of the PM, and a soil transformation of PM sediments into the nutrients. BGT* allows sustainability of the biosphere, enables a high quality of the atmosphere, stabilizes the climate system of the Earth, and is capable to promote a green circular economy.

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