



ASU Agronomijos fakultetas
**Agroekosistemų ir dirvožemio
mokslų institutas**

Studentų g. 11, 53361 Akademija, Kauno r., Tel. 75 22 29, 75 22 33; El. paštas admi@asu.lt

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TO WHOM IT MAY CONCERN

Since 2016 to 2017 associated professor doctor Jūratė Aleinikovienė (Agronomy faculty, ASU) and senior laboratory assistant Loreta Surginienė (Agronomy faculty, ASU) have conducted the study – „THE ASSESMENT OF MICROBIOLOGICAL ACTIVITY AND QUALITY OF PROBIOTIC MIXTURES“. The detailed study was carried out in 2016 (April-June and September-November) within following stages: *I stage* – determination in biomass density of active microorganisms in sample water solutions; *II stage* – assessment of microorganism variety and quantity according to the selected list of microorganisms; *III stage* – determination of parameters of quantitative probiotic mixtures as well as evaluation of the leaf lettuce (*Lactuca sativa* L.) productivity.

In order to evaluate microbiological activity and quantitative parameters there were different organogenic and chemical composition probiotic mixtures used: **FRIABLE PLANT PROBIOTIC (PLANT PROBIOTIC S100)** and **NATURAL SAPROPEL (LAKE MIDULIS)**.

WE CONCLUDE THAT:

1. **in case of inserting probiotic mixtures to soil, the organic matter quantity would increase** and when the number of microorganisms and their activity increase organic matter would mineralize thus increasing humus fraction.

2. **probiotic mixtures improve the development of microorganism biomass and the ferment activity of microscopic fungi.**

3. **organic matter can be decomposed longer** in natural sapropel with more organic substances (over 60%), **thus, ensuring greater activity of microorganism.** Suitable microorganism activity can be ensured in probiotic mixture with 46,8% of insoluble organic matter.

4. **natural sapropel is increasing activity of microorganism and can be noted as a mixture suitable for multifunctional variation in micro biotic decomposition.**

5. **friable Plant Probiotic mixture consisted of fermentative active and important symbiotic bacteria** for root level (*Bradyrhizobium*), and prevalent organic substance decomposing

saprophytic bacteria (*Pseodomonas, Rhodococcus*). **Natural sapropel consisted of** organic matter decomposing and important **saprophytic root level actinobacteria** (*Actinomyces*), prevalent organic substance decomposing **saprophytic bacteria** (*Bacillus*), specific fermentative active **saprophagus symbiotic bacteria** (*Verminephrobacter*).

6. **the greater effectiveness of leaf lettuce was estimated in friable *Plant Probiotic mixture***. In this mixture lettuce leaves formed 6-7 leaves, whereas in sapropel and mineral soil, which was watered by liquid *Plant probiotic*, the lettuce formed only 4-5 leaves. In comparison, in mineral soil the lettuce even changed the pigmentation.

Director of
Institute of Agroecosystems and Soil Science

Vaclovas Bogužas

assoc. prof. dr. Jūratė Aleinikoviėnė, phone (+370) 67185303, email: jurate.aleinikoviene@asu.lt