

WHAT IS NUTRONFLORA?

NUTRONFLORA is an NPK fertiliser solution that promotes the luxuriant development of aquatic plants. Regular use of the product prevents weakening of the aquatic flora and invigorates any suffering ones because it provides all the nutrients useful for growth.

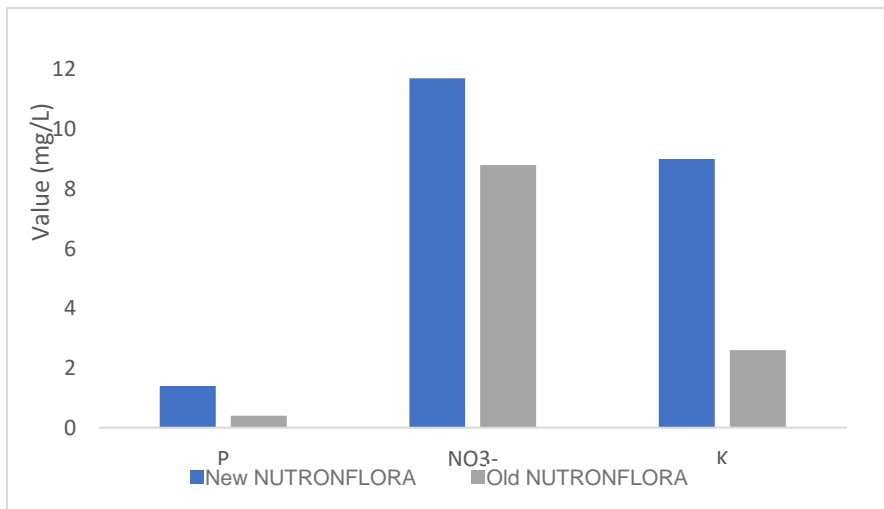
NUTRONFLORA is a duly registered fertilizer.

OVERVIEW

NUTRONFLORA is an "NPK" fertiliser which means that it supplies the aquarium plants with Nitrogen, Phosphorus and Potassium. Specifically, *NUTRONFLORA* consists of 2% nitrogen, 3% phosphoric anhydride and 13% potassium oxide.

NEW FORMULA

NUTRONFLORA has been improved thanks to multiple tests in our Research and Development laboratory.



A significant difference between the old and the new *NUTRONFLORA* is the composition: this new product provides the plants directly and specifically with nitrogen, phosphorus and potassium; it is much more concentrated and with lower dosages than the old *NUTRONFLORA*.

We tested the old and the new *NUTRONFLORA* at the same time in a 5 Lt container containing osmotic water; we administered 0.1 mL of the

new *NUTRONFLORA* and 1.25 mL of the old *NUTRONFLORA* as instructed. We waited 5 minutes for the water to mix with the product and we checked the content of nitrogen, phosphorus and potassium in the water with our electronic instruments. We therefore represented with the graph shown above the values found.

As can be seen, the new *NUTRONFLORA* is much more concentrated than the old *NUTRONFLORA*.

Elements	+ 0.10 mL – new NUTRONFLORA	1.25 mL - old NUTRONFLORA
P	1.4 mg/L	0.4 mg/L
NO ₃ ⁻	11.7 mg/L	8.8 mg/L
K ⁺	9 mg/L	2.6 mg/L



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Although the dosage of the new *NUTRONFLORA* is significantly lower than the old formulation (1.15 mL less for 5 Lt of water), there is an enormous difference of 1 mg / L of phosphorus (P), 2.9 mg / L of nitrate (NO₃⁻) and 6.4 mg / L of potassium (K⁺) added compared to the old formulation.

HOW IT WORKS

Nitrogen, Phosphorus and Potassium are nutrients that belong to the family of "macronutrients". Let's analyse the individual elements:

Nitrogen – N

Nitrogen constitutes 1.4 - 1.7% of the macronutrients of plants. After oxygen, carbon and hydrogen it is the most important element and the most consumed by your plants.

In the aquarium nitrogen is found in the form of ammonia, nitrites and nitrates, deriving from the decomposition of the organic load of the aquarium (nitrogen cycle). Nitrogen compounds in high concentration are dangerous for fish but are good for plants, which is why *NUTRONFLORA* has been designed and studied in our Research and Development laboratory with a specific composition and percentage of nitrogen in such a way as to avoid presenting any problems in case of normal administration.

→ A nitrogen deficiency is visible on old leaves in slow growing plants and on new leaves in fast growing ones. A quick visual test to verify a nitrogen deficiency is the appearance, although not in all species, of bi-coloured leaves, i.e. leaves with a yellow tip and a green base. In some plants, instead, roots are created around the "stem" of the plant.

→ An excess of nitrogen, however, is easily measured with our *PRODACTEST NO3* test.

Phosphorus - P

Phosphorus constitutes 0.2-0.3% of the macronutrients of plants, and ranks fifth of the most important elements for plants. However, phosphorus is in first place for the number of functions it performs inside the plant. In fact it is involved in the production of pigments and in the development of roots.

→ A phosphorus deficiency is not always easy to identify, as it depends greatly on the species of the plant present in the aquarium; generally it presents with slow growth, yellowing and falling leaves. Furthermore, phosphorus also allows the other macronutrients to be properly absorbed, thus being extremely important.

Potassium - K.

Potassium constitutes 1.0 -1.5% of plant macronutrients and is the second most important element after nitrogen.

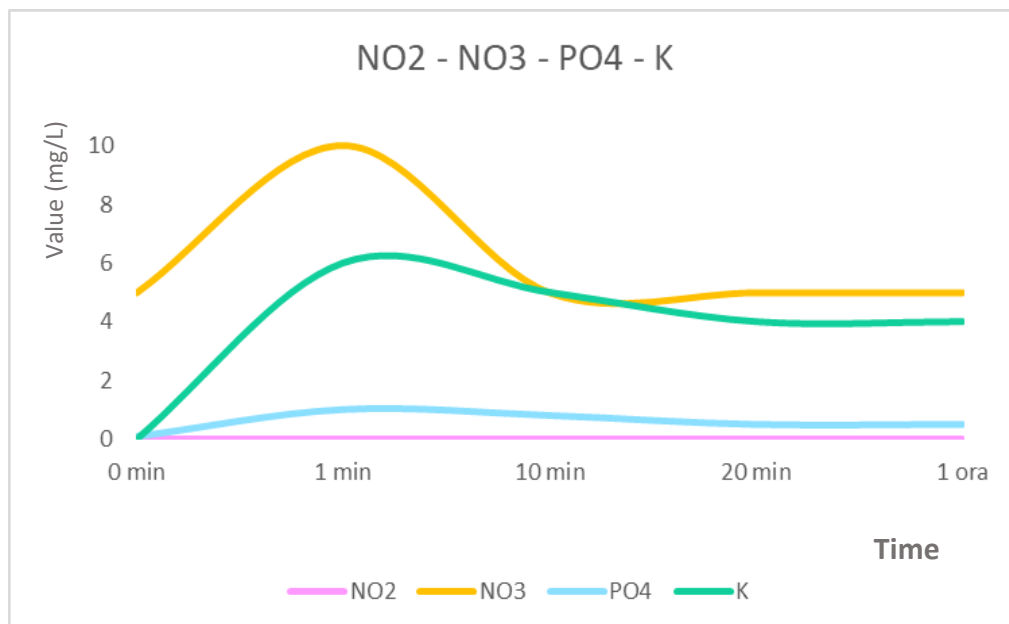
→ A potassium deficiency is easily visible as it is a "mobile" element, that is, the plant can transfer it into its channels where it is most needed. In case of deficiency it is usually removed from the old leaves and concentrated in the young ones; consequently the young leaves remain small while the old ones turn yellow and detach.

→ An excess of potassium is usually not harmful to plants.

TESTS PERFORMED

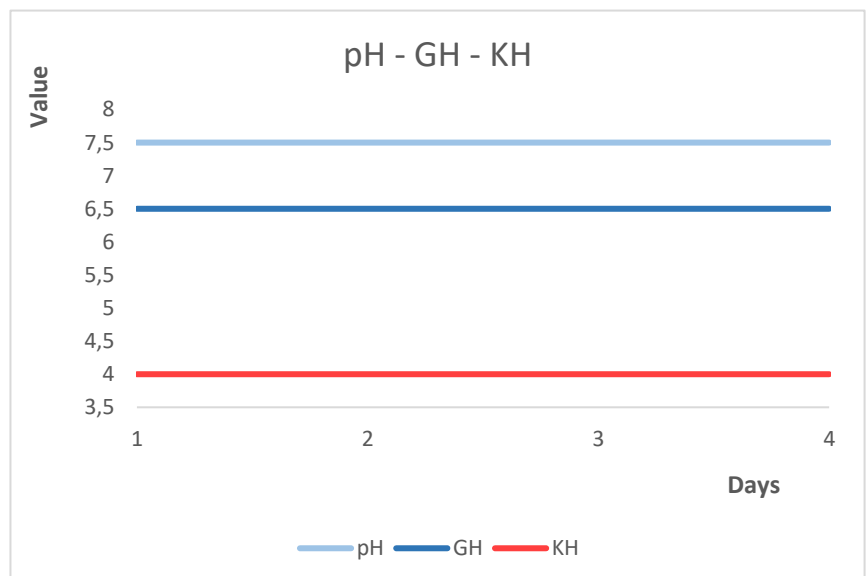
We tested *NUTRONFLORA* in a 70 Lt aquarium. The bottom of the aquarium is made up of *FONDOVIVO* + *WHITE QUARTZ*. The biological filter is made up of *FILTERWATTE* + *BIOCLARO* + *AQUACIL*. The pump is *MAGIC PUMP 550*, while the water inserted is tap water treated with *AQUASANA*. The aquarium was planted with *Lagenandra meeboldii* red, *ludwiga repens*, *alternanthera cardinalis*, *anubias barteri* and *Limnophila sessiflora*.

Before introducing *NUTRONFLORA* we measured the pH value with *PRODACTEST pH*, the GH value with *PRODACTEST GH*, the KH value with *PRODACTEST KH*, the nitrite value with *PRODACTEST NO₂*, the nitrate value with *PRODACTEST NO₃*, the value of phosphates with *PRODACTEST PO₄* and the potassium value; then we introduced 1.4 mL of product into the aquarium according to the instructions.



After the administration of *NUTRONFLORA* we measured the value of nitrites, nitrates, phosphates and potassium with the times indicated in the "Time" axis and we reported the values found in the graph above. For 4 days we also measured the pH, GH and KH value and we reported the values found in the graph shown to the side.

"0" represents the starting values of the aquarium before the introduction of *NUTRONFLORA*.





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DISCUSSION and CONCLUSIONS

As can be seen from the first graph representing the value of nitrites (NO_2), nitrates (NO_3), phosphates (PO_4) and potassium (K), the introduction of *NUTRONFLORA* raised the values of NO_3 , PO_4 and K but did not in any way affect the value of nitrites. Consequently *NUTRONFLORA* is completely harmless for fish.

After 1 hour, the values of NO_3 , PO_4 and K fell as the plants needed these nutrients.

With the second graph it can be seen that *NUTRONFLORA* does not alter the aquarium values in any way (pH, GH and KH).

NUTRONFLORA is an excellent liquid fertiliser for plants to be used in the case of heavily planted aquariums. Maintaining healthy plants also helps to maintain a correct balance of aquarium values thanks to the fundamental importance of plants in the nitrogen cycle.

NUTRONFLORA together with *NUTRONFERRO*, is part of the PRODAC fertiliser line and are the first allies for the healthy growth of your plants.