

Educational Topic: Nutrient Adaptation

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What is Nutrient Adaptation?

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Nutrient Adaptation refers to the timeframe where a specific culture is transitioned from a specific nutrient source or recipe. to a different one, and the underlying process that mycelium goes through in order to assimilate its new nutrient Environment.

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Nutrient Adaptation phase can be triggered from a change in just the main nutrient source, a change in secondary nutrient sources or their ratios, or a complete change in all nutrients (both main and secondary). And as expected, the nutrient adaptation timeframe is affected depending on which of those 3 change types are being implemented.

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The most severe change is a total recipe change (both main and secondary nutrient being replaced, followed by a main nutrient change and lastly, a secondary nutrient change. This is merely via the weight those nutrients have on any given recipe, so in essence, a simple cause and effect relation due to higher or lower % change in a recipe.

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Today we will focus on the most common Nutrient Adaption, which is a main nutrient change (for example, changing from LME to Sorghum, or from PDA to LME, etc) while leaving the secondary ingredients intact. Reason is, most people tend to stick with the same secondary ingredients regardless of main nutrient source (not optimal, but that's the case)

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In a Main Nutrient change, due to the high % of this nutrient in the recipe, the mycelium will definitely go through a Nutrient Adaptation Period that in most cases will be noticeable. In essence, the mycelium will have to learn to assimilate this new source of nutrient and learn how to best digest/process it. At first, the mycelium might not be super-efficient at digesting this new nutrient, but with time it will adapt and learn, part of the survival instinct of all living things.

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On this type of change, the mycelium is usually adapted within 3 transfers (if it hasn't at around this level, there could be other things affecting the mycelium besides the main nutrient change).

During the Nutrient Adaptation phase, specially the first transfer or 2, you might expect the following: weaker looking mycelium (less intense white), wispy and "tomentose" looking mycelium, as those are signs the mycelium is not yet adapted to its new source (assuming it was a perfectly strong mycelium before the change).

A good rule of thumb I use when adapting any culture to a new main ingredient is to use a very high nutrient agar formula, reason being that although in numbers it could be a high amount vs normal, since the mycelium is still sluggish at digesting this nutrient, it will equate to a much lower amount. After a few transfers then you can lower the recipe (or keep it at high if it's a high Nutrient lover).

Also, the nutrient adaptation timeframe will also depend on the similarity in nutrient profile from your current nutrient to your new one. For example, most LME to Sorghum conversions are mostly done in 2-3 transfers, since they have a few similarities between them. But when doing PDA to Sorghum for example, it usually takes all 3 or even 4 transfers at times, since those 2 have very different nutrient profiles.

Hope this small guide helps anyone that is thinking of playing around with nutrients, in what to expect in some regards and the usual timeframes. This can be longer if it's a whole new formula change (but i do know this type of change is much rarer) and lesser if just changing 1 secondary ingredient, etc @highlight