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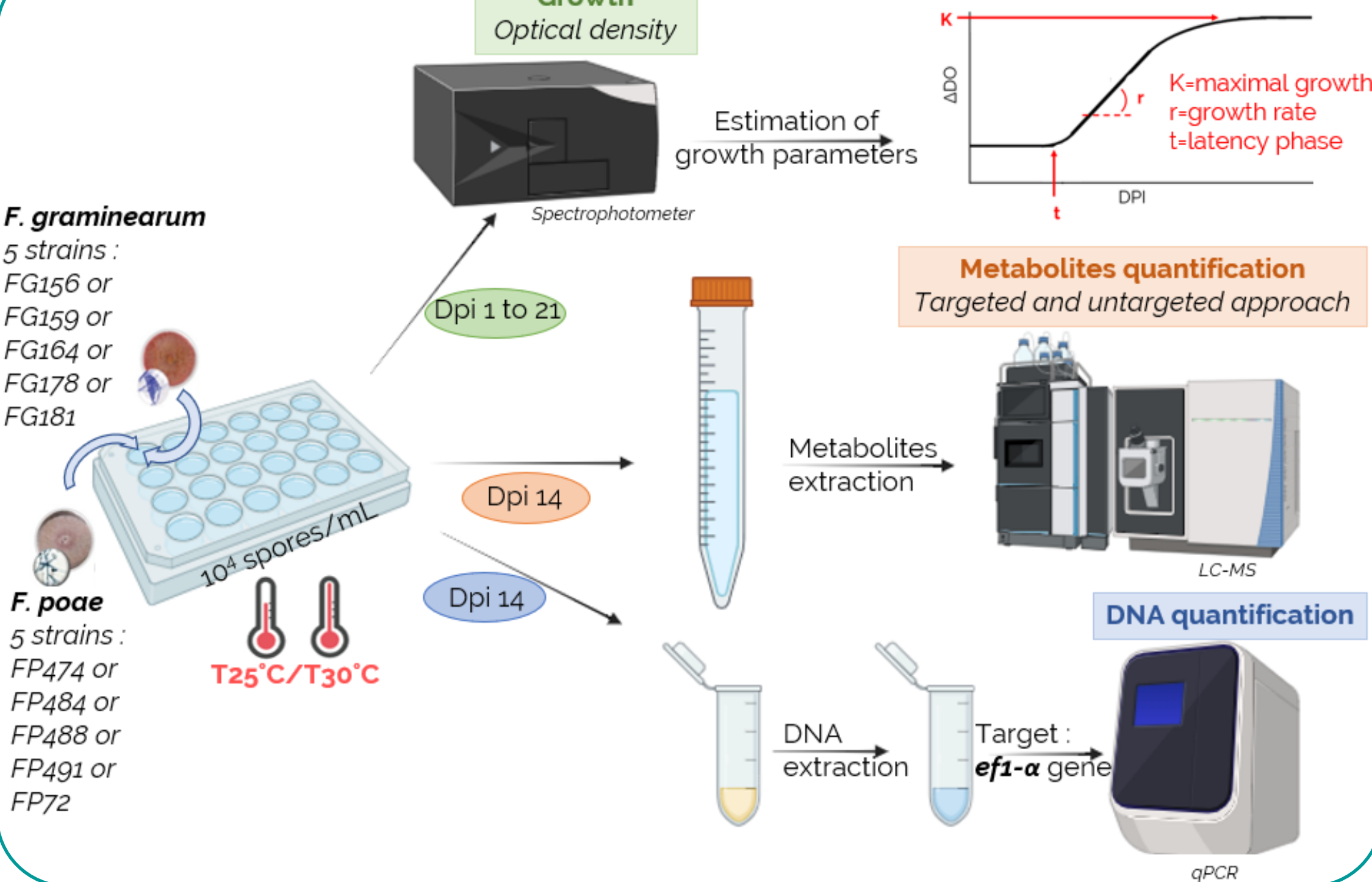
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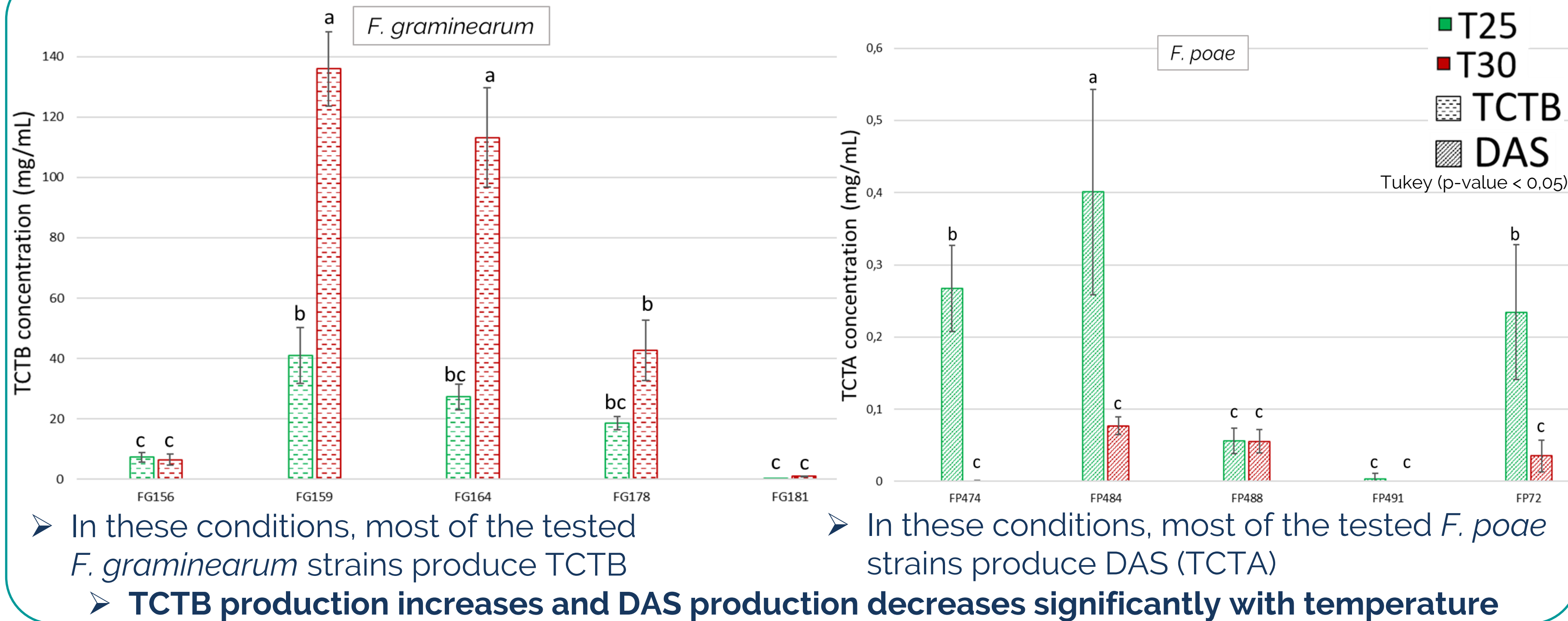
# Effect of temperature variation on growth and exometabolome of *Fusarium graminearum* and *Fusarium poae* in *in-vitro* co-cultures

Fusarium Head Blight (FHB) is a devastating disease affecting wheat, mainly caused by fungal species of the *Fusarium* genus. FHB has a severe impact on yield and kernel quality due to the risk of contamination with mycotoxins<sup>[1]</sup>. *Fusarium graminearum* and *Fusarium poae* are the predominant species causing FHB<sup>[2]</sup>. These species produce different types of mycotoxins: *F. graminearum* is a well-known producer of type B trichothecenes and mainly of deoxynivalenol/DON and its acetyl derivative 15-ADON<sup>[3]</sup> while *F. poae* mainly produces type A trichothecenes including diacetoxyscirpenol/DAS, T-2 and HT-2 toxins<sup>[4]</sup>. Previous studies have shown that the occurrence of *F. graminearum* is promoted by moderately warm summers whereas dry and hot climates are more favourable to *F. poae* <sup>[3,5]</sup>. Climate change is likely to affect the distribution of *Fusarium* species infecting wheat and therefore the pattern of contaminating mycotoxins. The purpose of our study is to characterize the effect of increased temperature on the growth and exometabolomes of *F. graminearum* and *F. poae* cultivated as single or co-cultures in liquid medium. This new knowledge will help anticipating the consequences of climate change on the mycotoxin risk associated with wheat.

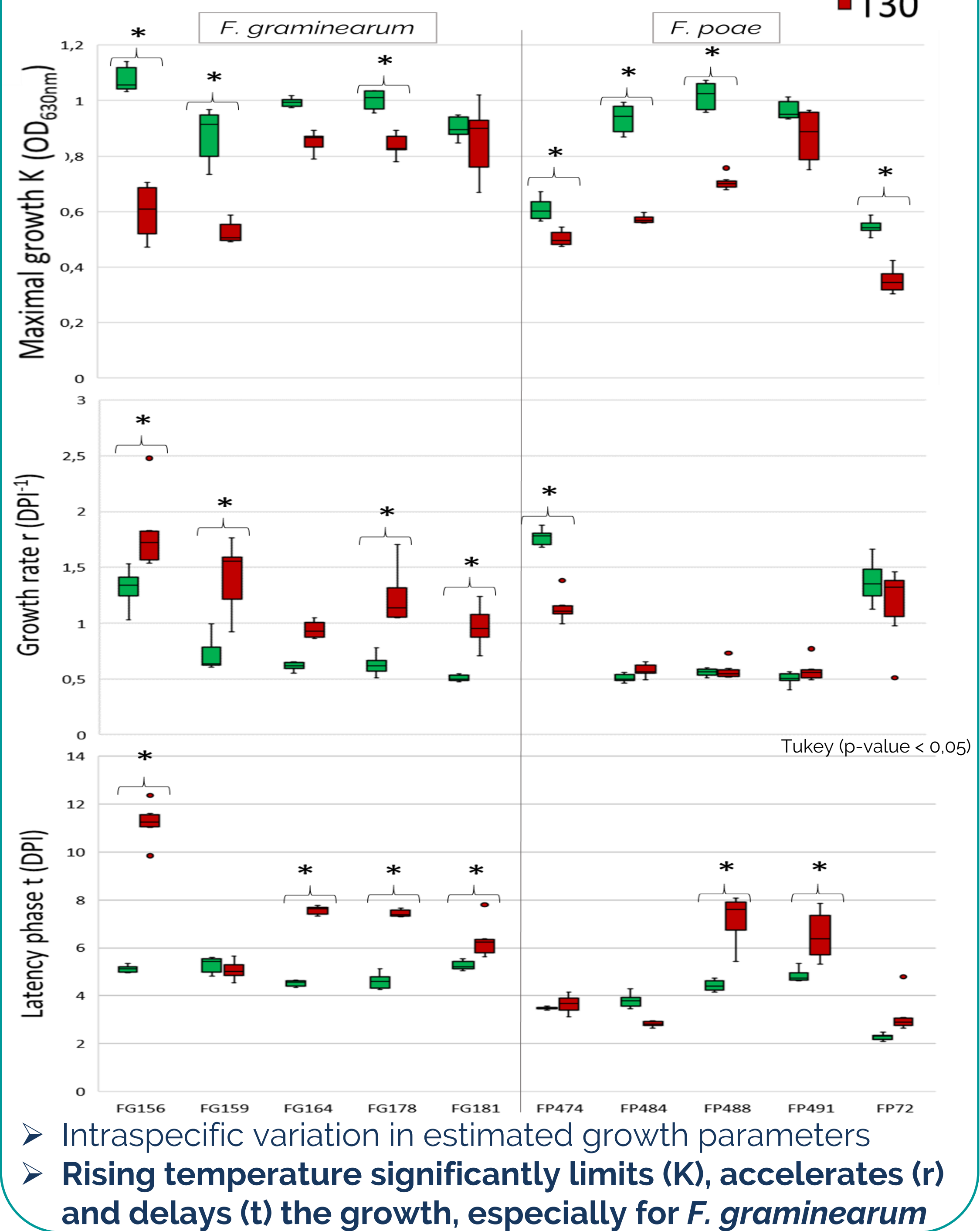
## 1. Methods



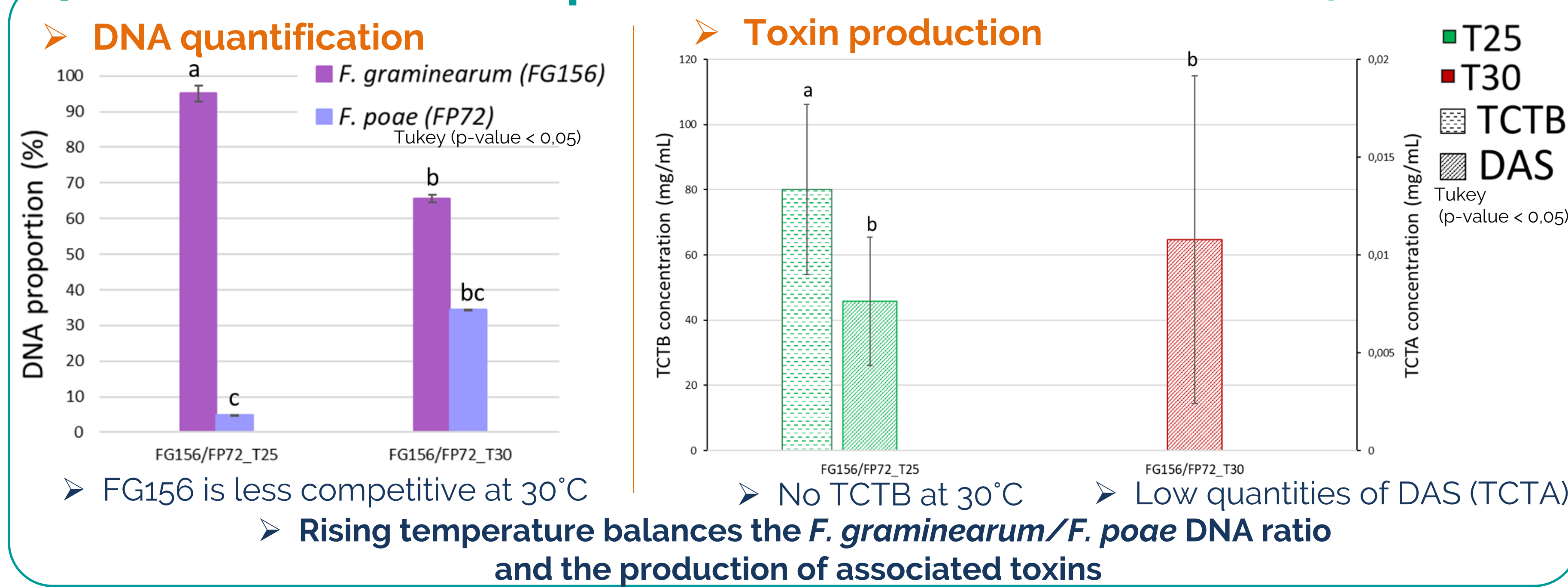
## 3. Toxin production in single cultures



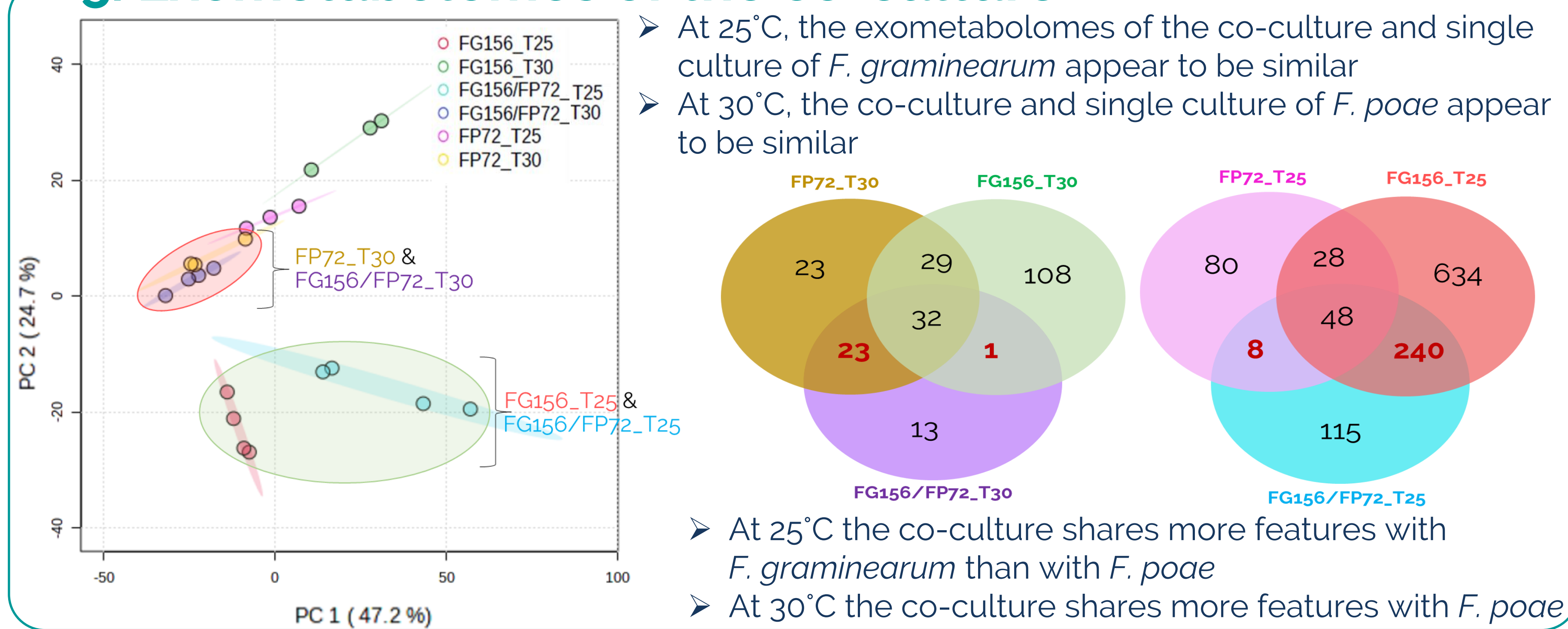
## 2. Growth parameters in single cultures



## 4. Growth and toxin production in co-culture (FG156/FP72)



## 5. Exometabolomes of the co-culture



## Conclusions and perspectives

- The effect of increasing temperature on growth and toxin yield is strain-dependent
- At 30°C, *F. poae* appears more competitive than *F. graminearum* in *in-vitro* co-culture
- At 30°C, the metabolomic profile of the co-culture is closer to that of *F. poae* and *vice versa* with *F. graminearum* at 25°C  
➔ This suggests that *F. poae* may become more common in fields in the coming years as a result of climate change
- Pursuing our investigations in simplex and co-cultures at different temperature to highlight the variation between species
- Study the effect of other environmental factors (agricultural practices, wheat variety, sun radiation)
- Going further in identifying the metabolites produced by the co-culture FG156/FP72