

## STYDY ON THE PROTECTED AND UNPROTECTED CULTURE OF TULIPS IN ARGEȘ COUNTY

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### Abstract

The aim of this paper was to observe the differences between tulips cultivated in a solarium with the possibility of heating and outside on arable land. The biological material analyzed was represented by 2 cultivars of tulips: 'Irene Parrot' and 'Winter Parrot'. The study was conducted in Purcăreni, Argeș county. Observations, measurements and determinations were performed, the analyzed characters being the following: the height of the floral stem, the number of branches, the length and width of the leaves, the number of leaves, the length of the floral cup, the diameter of the floral cup. The low light conditions during the solar culture period greatly influence the increase in height of the studied cultivars, as well as the size and number of leaves, which are lower than in the field culture. Regarding the characteristics of the floral cup, the negative influence of the low light conditions during the solar culture period is observed.

Keywords: culture, field, tulips, study, solar.

### 1. INTRODUCTION

The tulip (*Tulipa gesneriana* L.) is an important ornamental bulbous plant belongs to the family *Liliaceae*. Tulip cultivation is done for decorating different categories of green spaces, but also for growing pots and as cut flowers (Toma, 2009). The flowers in a wide range of shapes and colors are very attractive and elegant. Their consumption has increased in most of spiritual and traditional events like Christmas, Valentine's Day, Mother's Day and Happy New Year festivities (Ahmad et al., 2014, Bashir et al., 2018). Tulip blooms take place in spring, when the bulbs are planted in the field. In the case of protected crops, flowers can be obtained 10-20 days in advance, depending on the variety (Selaru, 2007).

The aim of the experiment was to determine the most efficient cultivation system for obtaining valuable morphological properties in 2 tulip cultivars which belong to the Parrot group. The Parrot tulips are spectacular through tepals and color combination (Oprea et al., 2012). The varieties of this group are also suitable for forced cultivation (Cantor and Gheorghita, 2011).

### 2. MATERIALS AND METHODS

The experiment took place in a solarium with the possibility of heating (70 x 8 m) and on arable land (50x 8m), in Micești, Argeș. The biological material analyzed was represented by 2 cultivars of *Tulipa gesneriana*: 'Irene Parrot' and 'Winter Parrot'.

The soil was a mixture of garden soil and sand (50:50). In the field, planting tulip bulbs was done manually, in the first half of October, in bands of 6 rows, at a depth of 7-8 cm and a distance between bulbs of 5 cm. The field was irrigated by sprinkling. In the solarium, the bulbs were planted in the first half of November, at the same distances between bulbs in a row and the same depth, the access roads being 50 cm. The 560 square meter solarium was heated with the help of an installation that used as a source of fuel the pellets resulting from the compaction of the vegetal materials. A temperature of 14°C was ensured. Care works specific to field or solar were carried out.

Observations, measurements and determinations were performed, the analyzed characters being the following:

- the height of the floral stem;
- the number of branches;
- the length and width of the leaves;
- the number of leaves;
- the length of the floral cup;
- the diameter of the floral cup.

The experience was bifactorial, the variable factors being the genotype and the type of culture.

Factor A – Genotype:

- A1 - Cultivar 'Irene Parrot';
- A2 - Cultivar 'Winter Parrot';

Factor B – Culture type:

- B1 - Heated solar culture;
- B2 - Field culture.



*Figure 1. Field culture*



*Figure 2. Heated solar culture*

Experimental variants:

- V1- 'Irene Parrot' in field;
- V2- 'Winter Parrot' in field;
- V3- 'Irene Parrot' in solarium;
- V4- 'Winter Parrot' in solarium.

### 3. RESULTS AND DISCUSSIONS

The low light conditions during the solar culture period greatly influence the increase in height of the cultivars studied.

At the time of harvest, 'Winter Parrot' recorded the lowest stem height (11.6 cm) in the solarium crop and the highest stem height (22.7 cm) in the field crop (Figure 3, Figure 4).

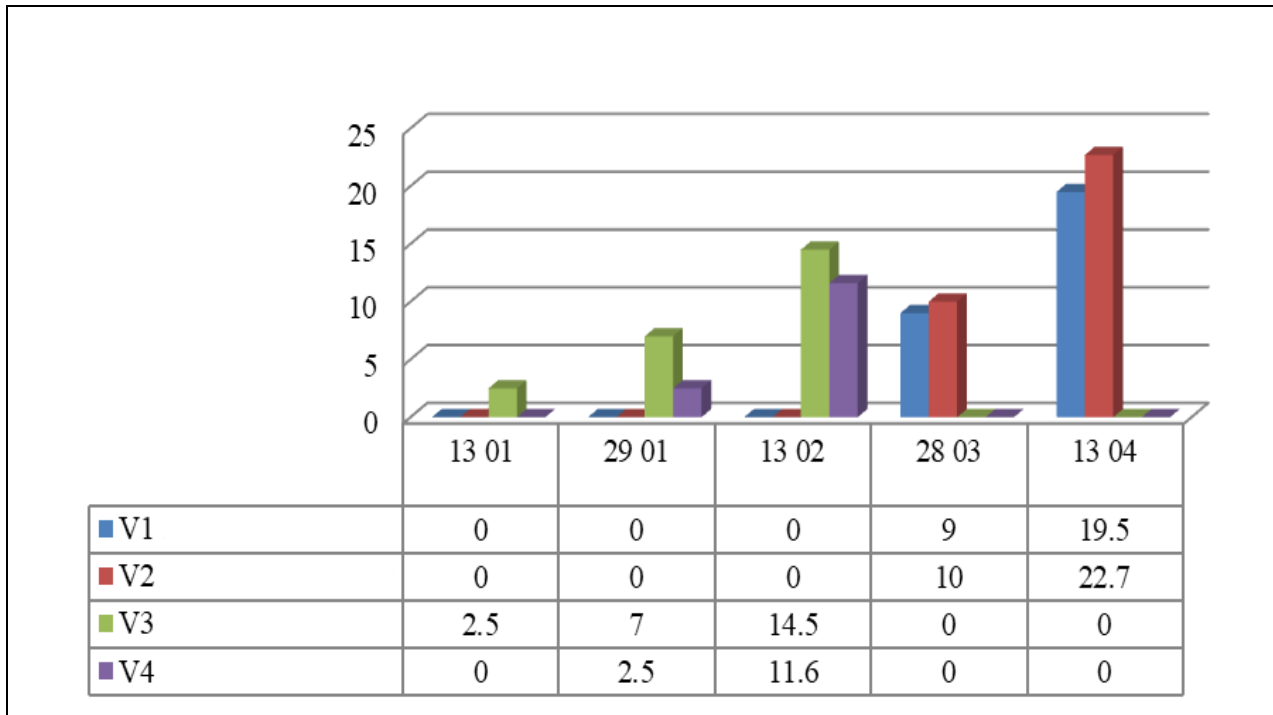


Figure 3. The height of the floral stem

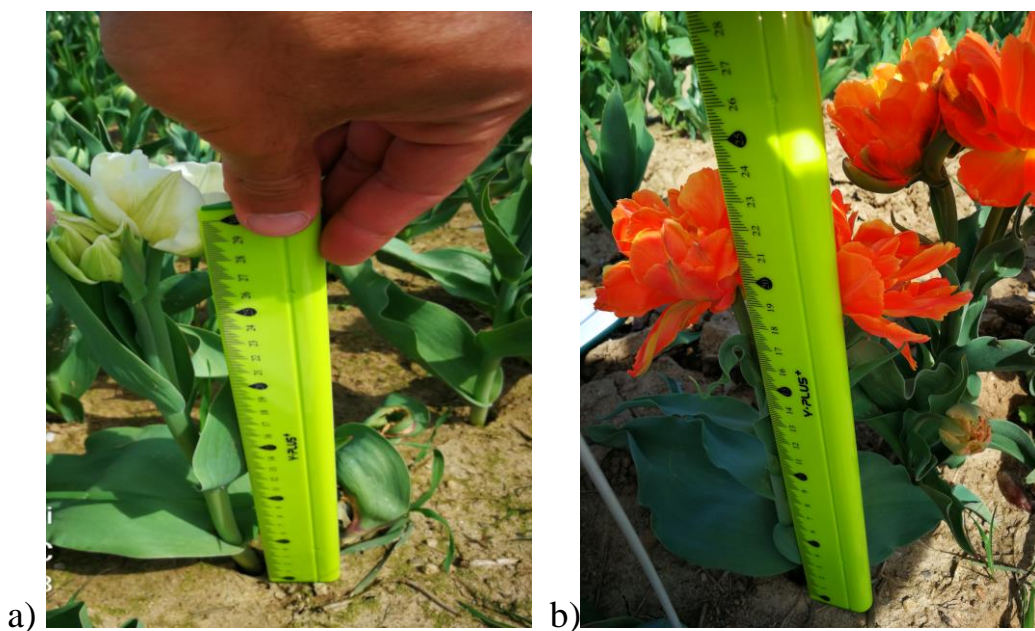


Figure 4. Measuring the height of the floral stems in the field (a) and in the solarium (b)

Regarding the number of branches/plant, 'Irene Parrot' recorded the highest average value of 2,1 (V3), compared to 1,9 (V1) branches/plant, a value recorded in the same cultivar in unprotected crops (Figure 5).

Compared to 'Winter Parrot' (Figure 6 a), 'Irene Parrot' can have more branches (Figure 6 b).

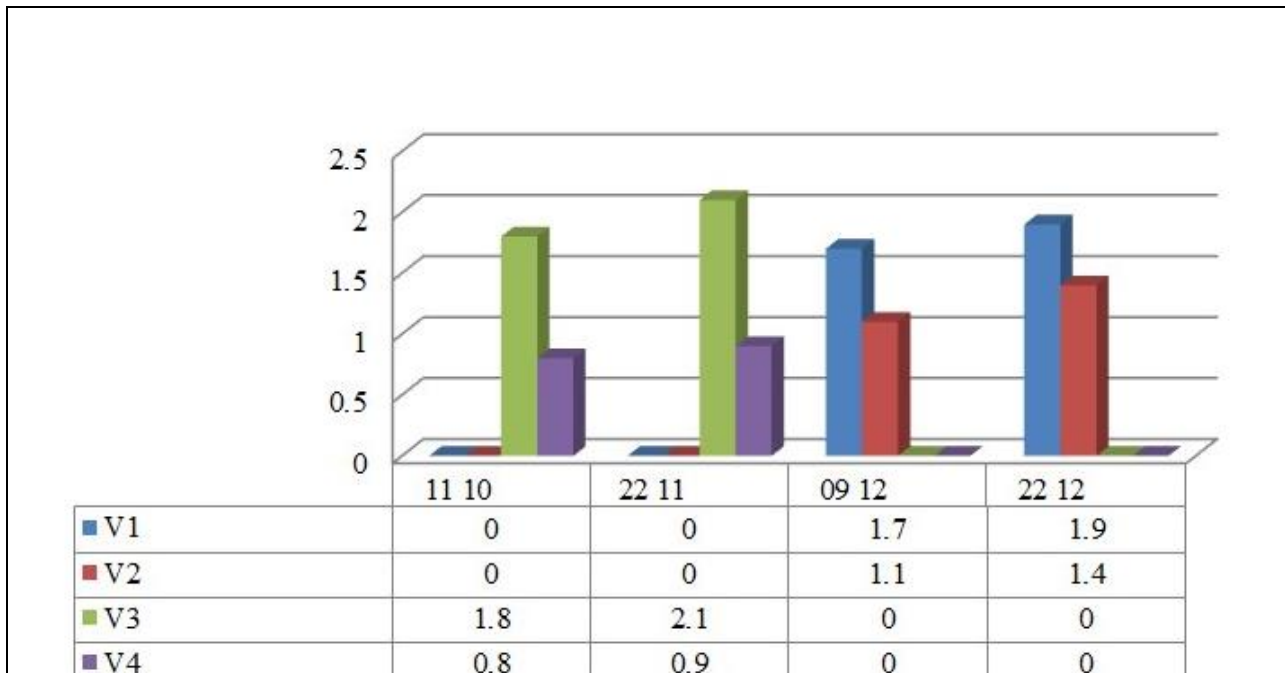


Figure 5. The number of branches in the studied cultivars



Figure 6. Development of branches at 'Winter Parrot' (a) and 'Irene Parrot' (b)

Regarding the length of the leaf, in the solarium culture there are no differences between the two cultivars studied. In field cultivation, 'Winter Parrot' obtains the highest value, at the time of harvest (15.6 cm), (Figure 7).

In terms of leaf width, the same cultivars, 'Winter Parrot' has the highest value, 6.2 cm, in field cultivation (Figure 8).

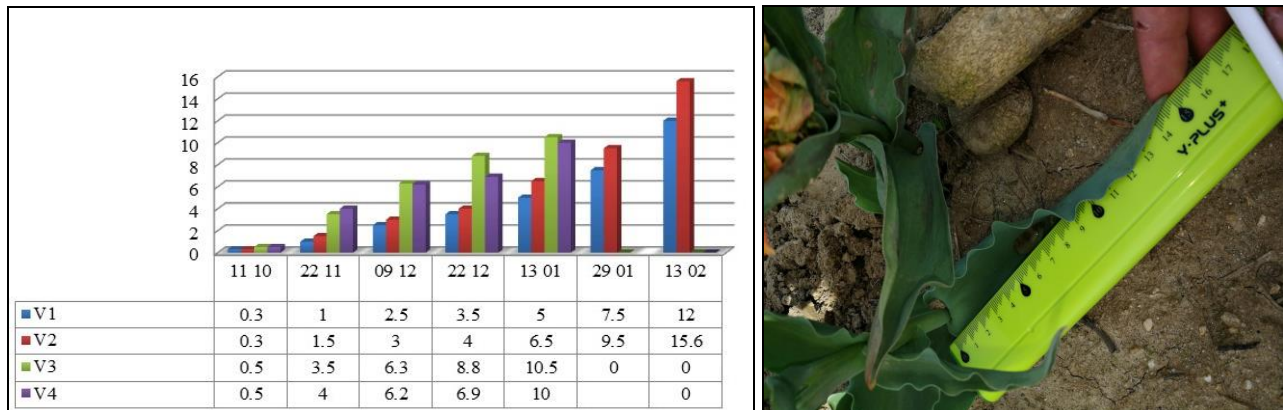


Figure 7. Leaf length in the cultivars studied

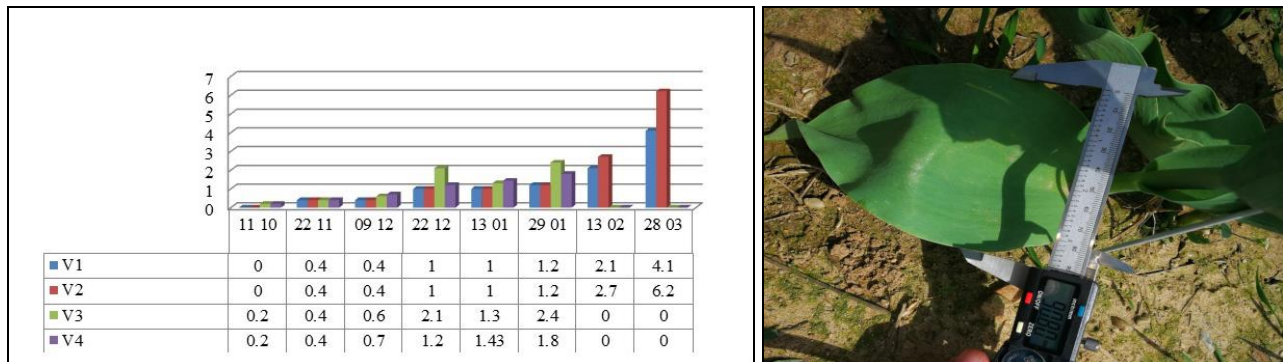


Figure 8. Leaf width in the cultivars studied

In the case of the number of leaves, the highest value belongs to the V1 variant with 5.2 leaves / plant, for 'Irene Parrot' and the lowest value is registered at V4 with only 2.7 leaves / plant, due to the poor development of 'Winter Parrot' (Figure 9).

The cultivar 'Irene Parrot' records the largest diameter of the perigon, 6.5 cm, in the field culture, compared to 3.5 recorded by 'Winter Parrot' in the same conditions (Figure 10).

'Irene Parrot' stands out in the solarium culture with a diameter of the perigon of 5.5 cm (Figure 11 a, b).

In the case of the perigon length, the results are close, in the two types of crops (Figure 12). 'Irene Parrot' records the longest perigon of 4.6 cm in the field crop (Figure), and 'Winter Parrot', 4.5 cm, in solarium culture (Figure 13 a,b).

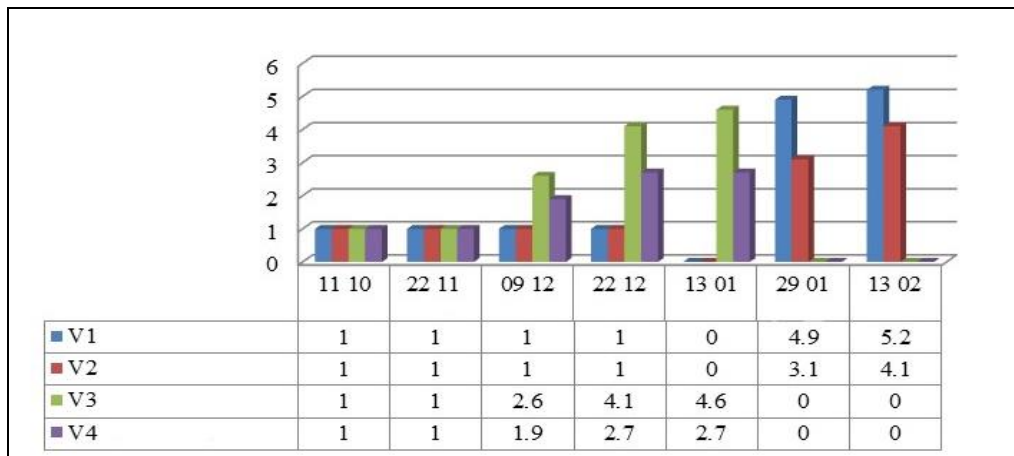


Figure 9. The number of leaves / plant in the studied cultivars

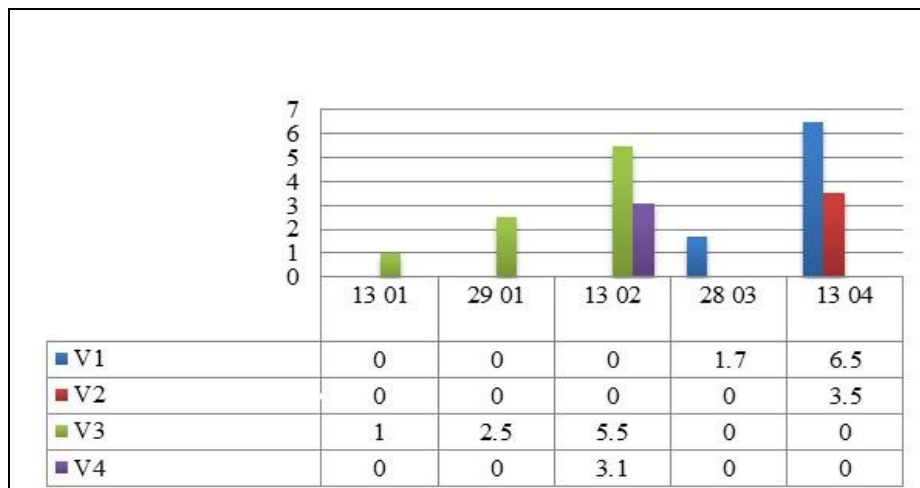


Figure 10. The diameter of the floral cup in the studied cultivars



Figure 11 (a,b). Perigon diameter at 'Irene Parrot' in the field cultures

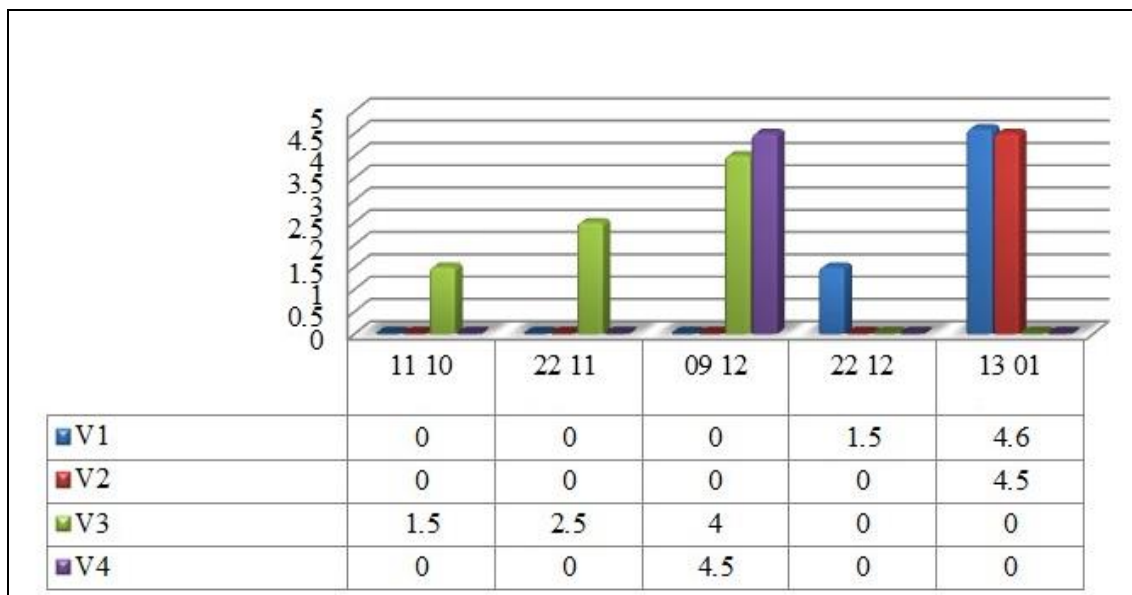


Figure 12. The length of the floral cup in the studied cultivars

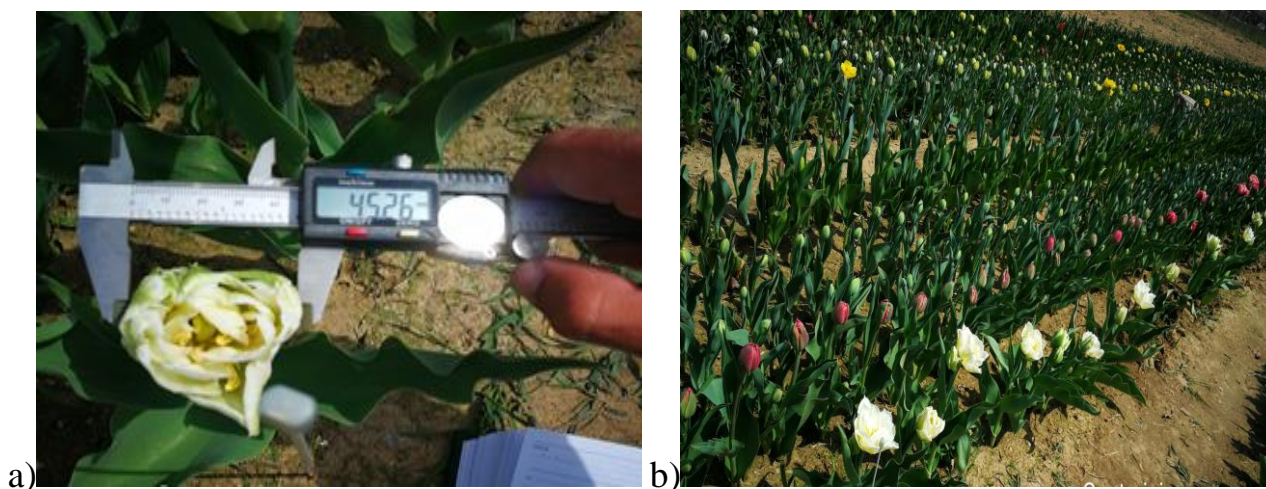


Figure 13 (a,b). The length of the floral cups at the 'Winter Parrot' cultivar in the solarium cultures

#### 4. CONCLUSIONS

The low light conditions during the solar culture period greatly influence the increase in height of the studied cultivars, as well as the size and number of leaves, which are lower than in the field culture;

Regarding the characteristics of the floral cup, the negative influence of the low light conditions during the solar culture period is observed;

Tulip cultivations is much profitable in a protected area than in the classic system culture, because the harvest time is 2 months ahead;

The 2 cultivars do not reach their maximum qualitative potential in protected areas, due to the non-uniformity of growth, but the commercial aspect is not influenced;

Both types of culture are profitable for the Argeş county area.

## 5. REFERENCES

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