



CATALOGUE OF SWEETPOTATO VARIETIES

*Genetic Resilience and Adaptation to
Climate Change for Tropical Food Systems*

Alfredo Morales • Dania Rodríguez

Catalogue of Sweetpotato Varieties

**Genetic Resilience and Climate Change Adaptation
for Tropical Food Systems**

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Authors

Alfredo Morales¹

Dania Rodríguez¹

Co-authors

Maryluz Folgueras Montiel¹, José Efraín González Ramírez¹, Milagros Basail Pérez¹, Manuel Lima Díaz¹, María del Carmen Castellón¹, Yuniel Rodríguez García¹, Alay Jiménez Medina¹, Dablys Guerra Hernández¹, Alexander Mederos Jauriga¹, Juan Ramón Gálvez¹, Onel Díaz Rodríguez¹.

Editing and layout

Alfredo Morales¹

Danay Rodríguez Vázquez²

Carmen C. Pons Pérez¹

Style, grammar and proofreading

Carmen C. Pons Pérez¹

Maryluz Folgueras Montiel¹

Affiliations

¹ Research Institute of Tropical Roots and Tuber Crops (INIVIT), Villa Clara, Cuba.

² Ronera Central Agustín Rodríguez Mena, Villa Clara, Cuba.

✉ Corresponding author: alfremr88@gmail.com

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INTRODUCTION

Sweetpotato (*Ipomoea batatas* [L.] Lam.) did not choose to be humble. History placed it in the hands of those who had nothing, in lands where other crops surrender, on tables where food is scarce. For eight thousand years, it has been the crop of those who cannot wait. It is not the most famous. It is not the most studied. But it survives where maize breaks and rice withers. And that, in the world to come, is the only title that matters.

Today, the planet is in debt to biodiversity. We have reduced it to nine crops. We have turned agriculture into a monoculture of risk, and climate change is already collecting the bill. In that scenario, sweetpotato is not a minor crop, it is one of the few answers we have not yet lost.

Cuba knew this before many others. In 1972, when the world was looking at cereals, INIVIT began to sow an idea that has never stopped. Without vast resources. Without cutting-edge technologies. Only with the conviction that the genetics of sweetpotato could be tamed. And it succeeded. Not with a single cross, but with more than fifty years of uninterrupted work. It was an act of scientific resistance, a long-term bet that today is called a collection of 920 accessions, the fifth most important in the world, and more than thirty released varieties that have changed Cuban agriculture.

This catalogue brings together ten of those varieties. They are not the only ones, but they are the most emblematic. They were created with patience, with errors, with genetic recombinations that are only obtained after thousands of evaluations. Each one is the result of a breeder who decided to stay one more hour in the field, or of a pollination carried out at dawn when the flower was just opening. Behind each root there is a story of perseverance.

There are varieties that feed half the country, that changed the taste of Cubans, that increased national yield by 256%. There are others that defeated the weevil (*Cylas formicarius* Fab.), the pest that for decades ruined entire harvests, and they did it without insecticides, only with the intelligence of their genes. There are orange-fleshed roots that bring vitamin A to children who have no access to other foods.

Climate change is no longer a prediction. It is a field that does not receive rain, a harvest that does not set, a pest that arrives before its time. But tropical agriculture is not defenseless. The answer lies in diversity. And this diversity is documented in these pages, waiting to be used.

May this catalogue travel. May it reach other islands, other tropics, other hands. Sweetpotato once crossed the Pacific in canoes. Now it can cross the world in a single page.



The background of the entire page is a photograph. In the foreground, there are several large, reddish-pink sweetpotatoes. In the background, two people are visible in a field, one of whom appears to be holding a clipboard. The scene is outdoors with green foliage in the distance.

THE TEN VARIETIES

More than thirty varieties have been released by INIVIT since 1972, when this dream called sweetpotato genetic improvement began in Cuba. The ten gathered in this catalogue represent a selection of the most resilient and versatile. All share essential attributes: proven phenotypic stability across multiple environments, sustained yield under real production conditions (with a historic 256% increase), commercial quality (smooth skin, uniform shape), and demonstrated tolerance to heat, drought and the most aggressive pests of the tropics.

But each one goes further. There are early varieties that escape water stress. There are orange-fleshed varieties that combat vitamin A deficiency, and purple-fleshed ones with high antioxidant power. There are roots with high dry matter content, ideal for industry, and dual-purpose varieties that also feed livestock.

This catalogue makes them available to the world. Because Cuban sweetpotato is not only for Cuba. It is a tool for tropical food security, a genetic legacy for future generations. Here they are. To know them, to use them, and to keep improving them. Because each variety is a story of perseverance. Each root, a promise of the future.

CEMSA 78-354

National registration: 1982

Origin / Progenitors: ♀ CEMSA 74-228. INIVIT, Cuba

Breeders: Alfredo Morales (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 110-120 days

Yield under production conditions: 25-30 t/ha

Number of commercial roots per plant: 3-4

Average commercial root weight: 150-250 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Round-elliptical, uniform

Skin: Yellow, smooth, no cracks

Flesh: Cream

Dry matter: 28-30%

Cooking taste and texture: Sweet, pleasant texture, good acceptance

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Susceptible

Nematodes (*Meloidogyne* spp.): Resistant

Viruses (SPVD: Sweet Potato Virus Disease): Tolerant

Climate resilience

Drought tolerance: High

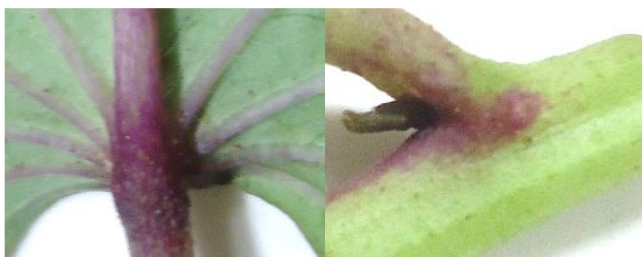
Heat tolerance: High

Waterlogging tolerance: Medium

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It is the traditional variety par excellence of Cuban farmers, famous for its great sweetness, floury texture and high table acceptance. It came to occupy more than 90% of sweetpotato areas in Cuba during the 1980s and 1990s, being the longest-lived and most widespread cultivar in Cuban agriculture. Although it was displaced by more modern cultivars, it remains a benchmark of stability, flavour and cultural resilience. Its abundant foliage gives it a high potential for dual purpose.



CEMSA 78-354



INIVIT B2-2005

National registration: 2005

Origin / Progenitors: ♀ CEMSA 78-326. INIVIT, Cuba

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 140-150 days

Yield under production conditions: 30-35 t/ha

Number of commercial roots per plant: 6-7

Average commercial root weight: 200-300 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Round-elliptical, uniform

Skin: Red, smooth, no cracks

Flesh: Dark yellow

Dry matter: 26-28%

Cooking taste and texture: Sweet, floury texture, good acceptance

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Tolerant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: High

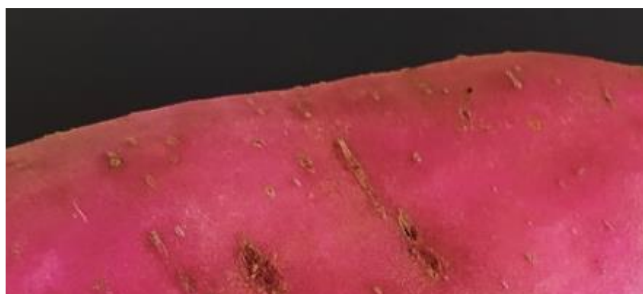
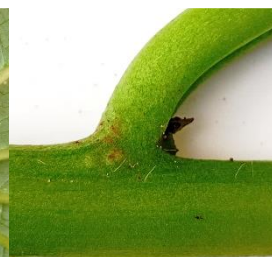
Heat tolerance: High

Waterlogging tolerance: High

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It is the most important sweetpotato cultivar in Cuba, occupying nearly 50% of the national growing area. Its rapid adoption since 2005 is due to its exceptional heat tolerance, which allows it to be planted all year round with high stability, reaching more than 30 t/ha under production conditions. It has a homogeneous load capacity of 6-7 roots per plant, very vigorous foliage suitable for dual-purpose use as animal feed, and it is widely used in countries such as Venezuela, being our greatest pride.



INIVIT B2-2005



INIVIT B-23

National registration: 2013

Origin / Progenitors: INIVIT B2-2005 x B-240. INIVIT, Cuba

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 110-120 days

Yield under production conditions: 25-30 t/ha

Number of commercial roots per plant: 3-4

Average commercial root weight: 250-350 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Long-elliptical, uniform

Skin: Pale orange, smooth, no cracks

Flesh: Pale yellow

Dry matter: 28-30%

Cooking taste and texture: Naturally sweet, floury texture, ideal for baking and frying

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Tolerant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: High

Heat tolerance: High

Waterlogging tolerance: Medium

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It is a very complete cultivar, with a perfect elliptical shape, yellow flesh and high dry matter content. It stands out for allowing greater chances of success against the negative effects of climate change, with excellent adaptation to high temperatures and drought tolerance. Its short cycle (120 days), smooth skin with excellent market appearance, abundant foliage and thick stems give it a high potential for dual-purpose use in family production systems.



INIVIT B-23



INIVIT B-50

National registration: 2015

Origin / Progenitors: 2005 x INIVIT B 16-2010. INIVIT, Cuba

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 110-120 days

Yield under production conditions: 30-35 t/ha

Number of commercial roots per plant: 7-8

Average commercial root weight: 150-250 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Round-elliptical, uniform

Skin: Red, smooth, no cracks

Flesh: Pale yellow

Dry matter: 27-29%

Cooking taste and texture: Sweet, soft and creamy texture

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Tolerant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: High

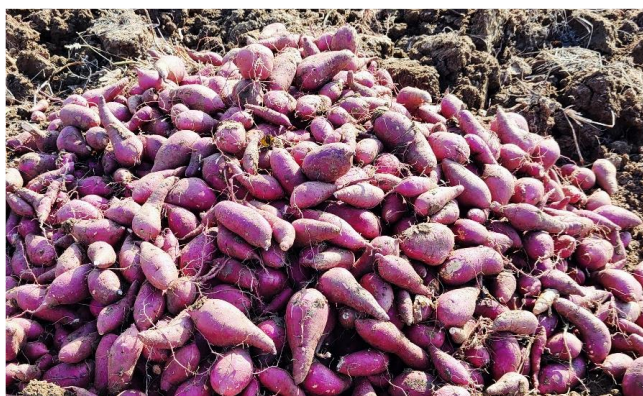
Heat tolerance: High

Waterlogging tolerance: High

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

This cultivar has excellent agronomic characteristics, including a harvest cycle of 110-120 days and a low level of weevil (*Cylas formicarius*) damage. It is one of the best cultivars released, due to its very high load capacity (7-8 homogeneous roots per plant) and its potential tuberous root yield of 58 t/ha. It is highly stable, heat-tolerant, with excellent appearance and outstanding culinary quality.



INIVIT B-50



INIVIT BM-90

National registration: 2016

Origin / Progenitors: Morado x Ningzi No.1. INIVIT, Cuba

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 140-150 days

Yield under production conditions: 20-25 t/ha

Number of commercial roots per plant: 3-4

Average commercial root weight: 150-250 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Long-elliptical, uniform

Skin: Dark purple, smooth, no cracks

Flesh: Dark purple

Dry matter: 28-30%

Cooking taste and texture: Balanced sweetness, smooth texture suitable for purées and creams

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Resistant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: Medium

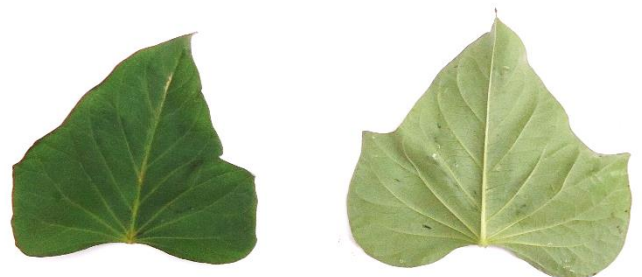
Heat tolerance: High

Waterlogging tolerance: Medium

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It was the first Cuban sweetpotato cultivar with entirely purple flesh and desirable agronomic characteristics. Its purple flesh is rich in anthocyanins, with high antioxidant power and benefits for human health. It has a low weevil damage index (<3.2%), and is a cultivar of great importance due to its differential nutritional value, opening new possibilities for the market and industry.



INIVIT BM-90



INIVIT BM-1

National registration: 2019

Origin / Progenitors: Morado x INIVIT BM-90. INIVIT, Cuba

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 120-130 days

Yield under production conditions: 25-30 t/ha

Number of commercial roots per plant: 3-4

Average commercial root weight: 150-250 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Round-elliptical, uniform

Skin: Reddish-purple, smooth, no cracks

Flesh: Dark purple

Dry matter: 28-30%

Cooking taste and texture: Balanced sweetness, smooth texture suitable for purées and cream

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Resistant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: High

Heat tolerance: Medium

Waterlogging tolerance: Medium

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

Its fundamental characteristic is its purple flesh, due to its high anthocyanin content pigments with high antioxidant power and multiple physiological functions in the human body, such as antihypertensive and antglycemic action, among others. This cultivar has potential for use in the functional food industry, tourism, and natural colorant extraction.



INIVIT BM-1



INIVIT Dorado-4

National registration: 2026

Origin / Progenitors: PJ05.130 × PZ08.038. Germplasm from CIP, Peru. Selected and released by INIVIT, Cuba.

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 110-120 days

Yield under production conditions: 30-35 t/ha

Number of commercial roots per plant: 4-5

Average commercial root weight: 200-300 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Elliptical, uniform

Skin: Orange, smooth, no cracks

Flesh: Dark orange

Dry matter: 26-28%

Cooking taste and texture: Pleasant sweetness, creamy texture with high popular acceptance

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Resistant

Nematodes (*Meloidogyne* spp.): Resistant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: High

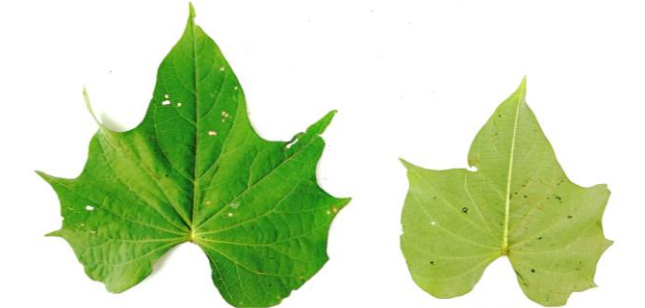
Heat tolerance: High

Waterlogging tolerance: High

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It is perhaps the perfect sweetpotato cultivar, combining resistance to the weevil (through antixenosis and antibiosis mechanisms, even when other genotypes next to it are completely infested), perfect elliptical shape, smooth skin, and intense orange flesh with high nutritional value. It is tolerant to drought and heat, with a 120 day cycle. It is highly stable and homogeneous, representing the program's greatest achievement in the search for weevil resistance.



INIVIT Dorado-4



INIVIT Dorado-6

National registration: 2026

Origin / Progenitors: PJ14.03815 X PZ14.10564. Germplasm from CIP, Peru. Selected and released by INIVIT, Cuba.

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 110-120 days

Yield under production conditions: 30-35 t/ha

Number of commercial roots per plant: 7-8

Average commercial root weight: 150-250 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Elongated elliptical, uniform

Skin: Red, smooth, no cracks

Flesh: Dark orange

Dry matter: 28-30%

Cooking taste and texture: Pleasant sweetness, creamy texture with high popular acceptance

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Resistant

Nematodes (*Meloidogyne* spp.): Resistant

Viruses (SPVD): Resistant

Climate resilience

Drought tolerance: High

Heat tolerance: High

Waterlogging tolerance: High

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

Very similar to Dorado-4 in its weevil resistance, this cultivar differs by its higher load capacity, producing 7-8 roots per plant, very even, clean and homogeneous. Its foliage is abundant and its stems are thick, which gives it a high potential for dual-purpose use in animal feed. It is a versatile, highly productive cultivar with excellent adaptation to tropical conditions.



INIVIT Dorado-6



INIVIT B-30

National registration: 2026

Origin / Progenitors: PJ14.03815 X PZ14.10564. Germplasm from CIP, Peru. Selected and released by INIVIT, Cuba.

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 130-140 days

Yield under production conditions: 35-40 t/ha

Number of commercial roots per plant: 8-9

Average commercial root weight: 150-250 g

Soil cover capacity: High (weed suppression)

Root characteristics

Shape: Elliptical, uniform

Skin: Yellow, smooth, no cracks

Flesh: Pale yellow

Dry matter: 28-30%

Cooking taste and texture: Sweet, compact and floury texture

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Tolerant

Viruses (SPVD): Tolerant

Climate resilience

Drought tolerance: High

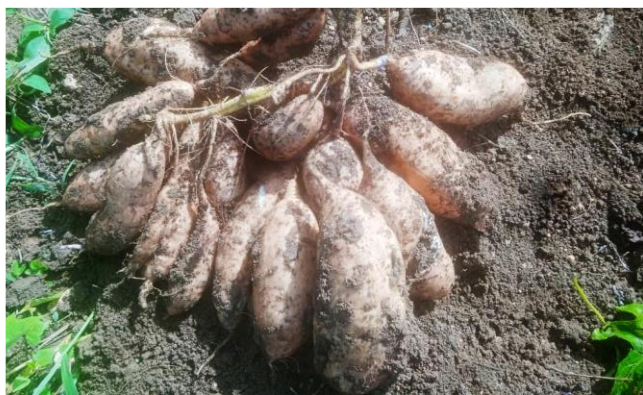
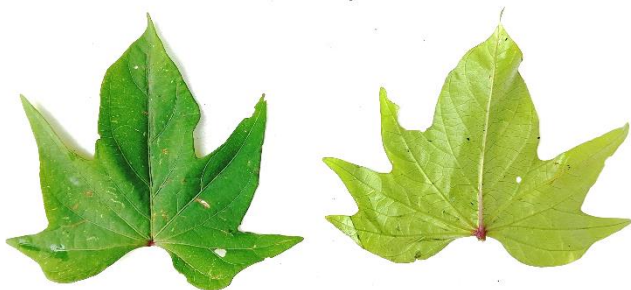
Heat tolerance: High

Waterlogging tolerance: High

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It is the cultivar with the highest yield potential found in the program, with plants that can produce more than 30 roots per plant (although only occasionally). Its yield potential exceeds 70 t/ha in 150 days, with a stable average of more than 8 roots per plant. It has yellow flesh and skin, is highly stable, heat-tolerant and drought-tolerant. It is the ideal cultivar for those seeking extreme yield.



INIVIT B-30



INIVIT B-60

National registration: 2026

Origin / Progenitors: PJ05.130 X PZ08.038. Germplasm from CIP, Peru. Selected and released by INIVIT, Cuba.

Breeders: Alfredo Morales and Dania Rodríguez (INIVIT)

Agronomic characteristics

Cycle (days to harvest): 110-120 days

Yield under production conditions: 25-30 t/ha

Number of commercial roots per plant: 6-7

Average commercial root weight: 150-250 g

Soil cover capacity: Medium

Root characteristics

Shape: Round-elliptical, uniform

Skin: Red, smooth, no cracks

Flesh: White

Dry matter: 28-30%

Cooking taste and texture: Naturally sweet, floury texture, ideal for baking and frying

Pest and disease resistance

Cylas formicarius (sweetpotato weevil): Tolerant

Nematodes (*Meloidogyne* spp.): Tolerant

Viruses (SPVD): Tolerant

Climate resilience

Drought tolerance: High

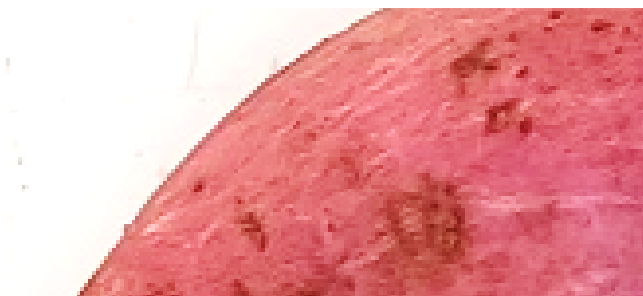
Heat tolerance: High

Waterlogging tolerance: Medium

Adaptation and stability: High phenotypic stability and wide adaptation

Key observations

It is excellent for industry, with high-quality white flesh and high starch content, ideal for processing and extraction. Its red skin makes it very visually attractive for certain markets. It is equally resistant to major pests and tolerant to drought and heat. It is stable, homogeneous, and combines an attractive appearance with high-value industrial attributes.



INIVIT B-60



This catalogue presents a selection of the ten most outstanding sweetpotato varieties developed by the Research Institute of Tropical Roots and Tuber Crops (INIVIT) of Cuba, the result of more than fifty years of genetic improvement. Each one has been evaluated under real production conditions for yield, root quality, pest resistance, and tolerance to stresses such as drought and heat. Ten varieties, ten genetic tools for a tropics that demands resilience.

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