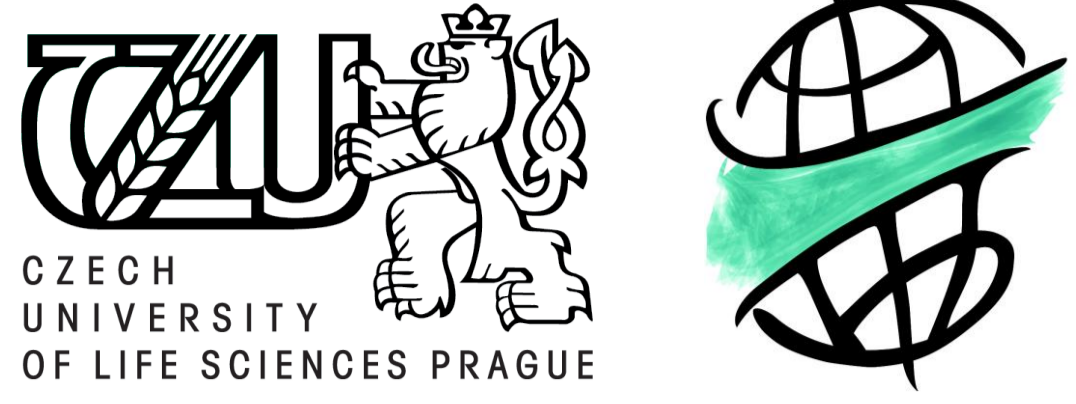


Diversity, Use and Consumers' Acceptance of Local Banana Cultivars in Ucayali, Peru

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Introduction

- Bananas and plantains (*Musa* spp.) are one of the most common crops in tropics. They are of great importance as staple food crops as well as items of international trade (1).
- Their biggest advantages are:
 - ❖ **High palatability**
 - ❖ **Nutrient richness** – great source of energy, minerals and vitamins (B, C, E) (2,3)
 - ❖ **Medicinal uses** – e.g. ulcer treatment, kidney health improvement, cholesterol-lowering effect and many others (4)
 - ❖ Cultivars rich in **carotenoids (provitamin A)** may help to alleviate vitamin A deficiency

Vitamin A deficiency is among major global health problems.

- Result of diet poor in vitamin A which manifests by suppressed immunity, dry skin and hair, or by blindness and may also result in higher childhood mortality (5).
- In 2009, the rates of vitamin A deficiency in Peru were among the highest in South America (6).
- Can be prevented by eating enough vitamin A rich food. Vitamin A (retinol) is present in animal products and its precursor provitamin A is in many plant foods, such as dark-leafy vegetables, orange-fleshed fruits or tubers (7).

Domesticated in Asia, bananas spread all over tropics and developed into many cultivars. **Some areas with potentially high banana diversity have not been properly studied for locally used cultivars, their mode of use, preparation and names.**

Considering this, we set following objectives:

- ❖ To determine diversity of banana cultivars commercialized in markets, including their morphological characterization.
- ❖ To document knowledge of their uses and names.
- ❖ To describe their sensory characteristics and consumers' overall acceptance.

Methodology

Study area was The Peruvian Amazon around the river Ucayali in the east of the country, which is the second most important region for *Musa* fruit production in Peru (8).



Fig. 1. Market in Pucallpa

In order to catalogize locally used banana cultivars, we performed inventory (9) in **markets of Pucallpa (Fig. 1.)**. The city is local centre of trade and economy, thanks to its connectivity to Lima and producers on the river.

Cultivars found were described in terms of **morphology** according to previously published descriptors (10) and their pulp to peel ratio was calculated.

Sensory evaluation was performed using degustation panel with 26 local panelists. They evaluated overall acceptance and properties of taste and texture of six dessert cultivars, using prepared sheet (11).

Local knowledge assessment was done with 35 informants, students and market vendors. In plant interview (12), they were asked for cultivars' names and uses. The specific uses described were categorized in Preparation types based on classification of Economy botany data standart (13).

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Results

Eleven distinct cultivars were found during the market inventory (Fig.2.):

- 5 cooking type cultivars ('Bellaco', 'Campeón', 'Común', 'Mamaluca' and 'Sapucho')
- 6 dessert type cultivars ('Capirona', 'Isla', 'Manzano', 'Muquicho', 'Rojo' and 'Seda')
- According to our best knowledge, 'Sapucho' has not been described previously in Peru.
- 'Isla', 'Mamaluca', 'Muquicho', 'Rojo' and 'Seda' were the closest to the yellow-orange pulp colour, which can indicate **high levels of provitamin A**.
- The highest pulp to peel ratio was found in dessert cultivars 'Muquicho', 'Manzano' and 'Seda'.

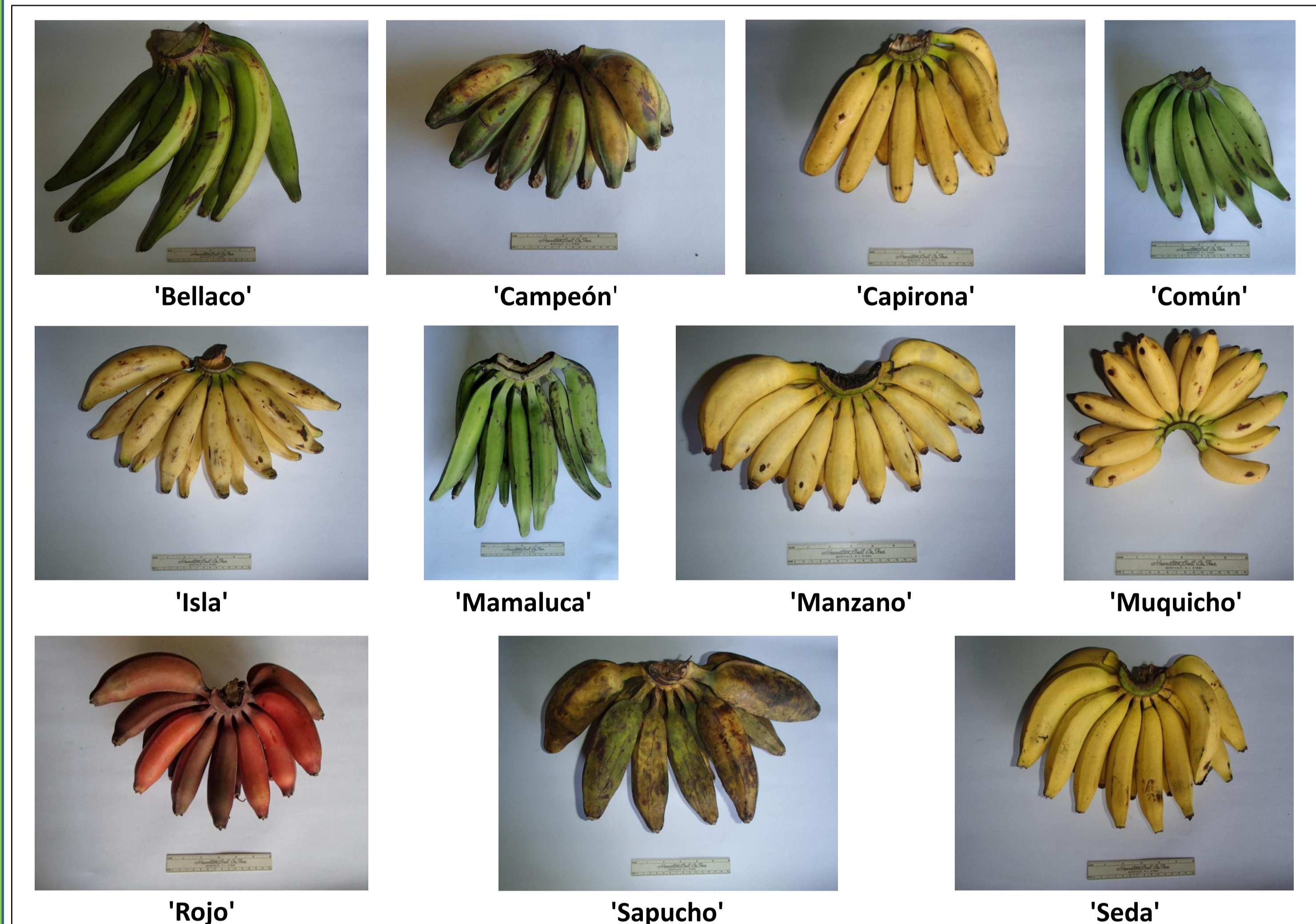


Fig. 2. Locally used cultivars found in the Ucayali region (15 cm ruler below them)

There were at least few synonyms for most of the cultivars.

Use categories (for both, unripe and ripe maturity stages together) mentioned by informants for each cultivar investigated are presented in Fig. 3.

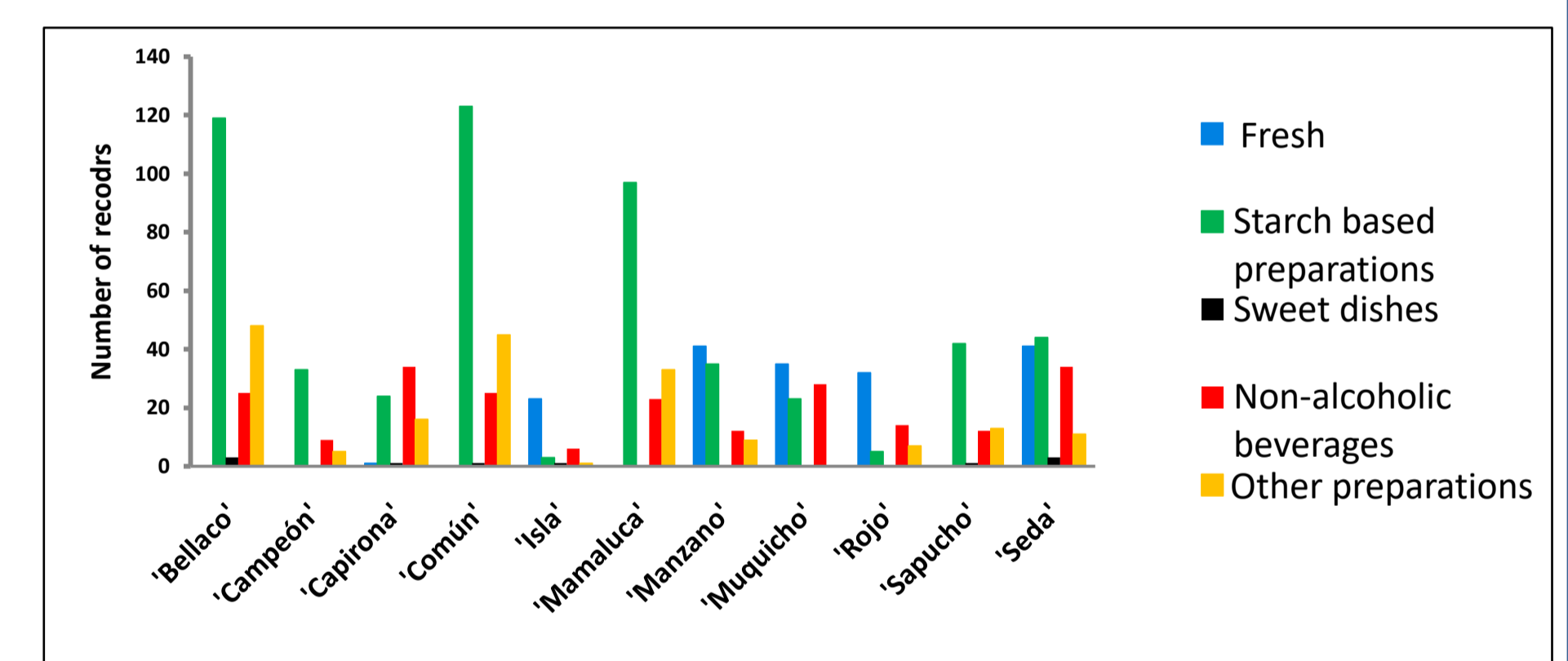


Fig.3. Use categories

'Común', 'Rojo', 'Sapucho' and 'Seda' were reported to be used as **medicine**, most frequently against stomach problems, diabetes and tuberculosis.

In degustation panel, panelists evaluated overall acceptance, taste (sweetness, acidity) and texture (stickiness, toughness, juciness) of cultivars investigated (Fig. 4. and Fig. 5.).

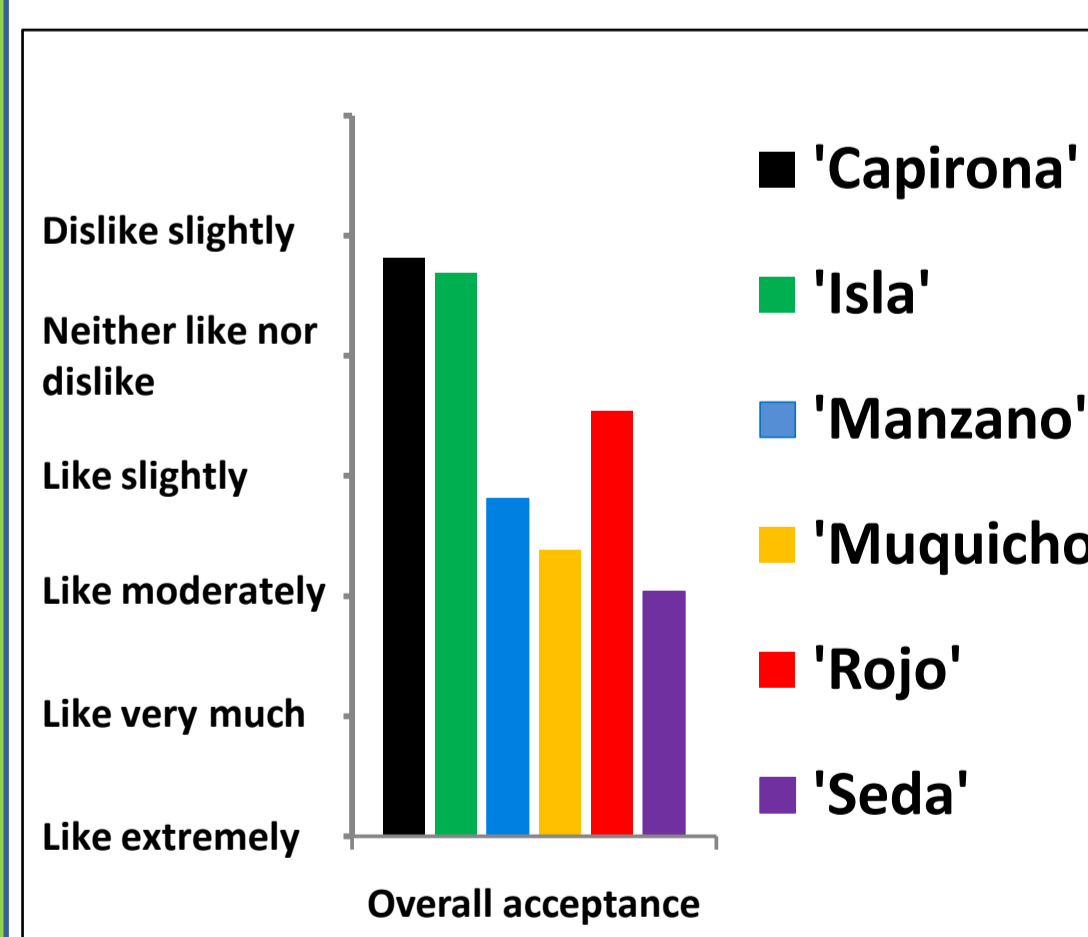


Fig.4. Overall acceptance

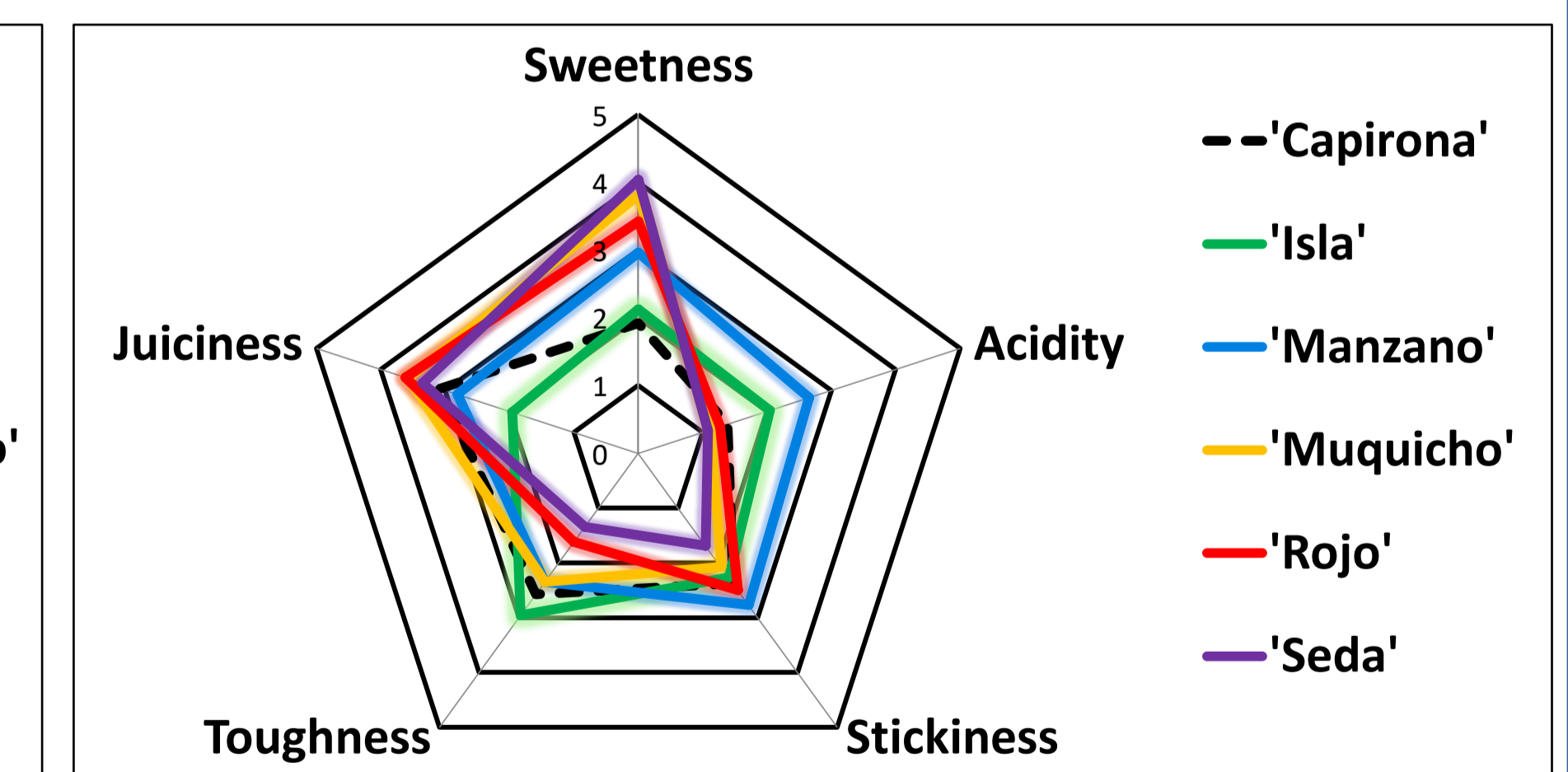


Fig.5. Sensorial properties of cultivars investigated

Conclusions

- The Ucayali region in Peruvian Amazon possess **high *Musa* spp. intraspecific diversity**
- Some **cultivars** may be rich in **provitamin A**, 'Isla', 'Mamaluca', 'Muquicho', 'Rojo' and 'Seda' are recommended for further analysis
- Various modes of use** were described, including some **medicinal uses**.
- Decline of local traditional knowledge** is apparent when compared knowledge of older people and youths, especially in medicinal uses.
- Sensory evaluation showed high influence of sweetness on overall acceptance and therefore also on consumers' choices.

