



# Perceptions of Urban and Rural Population of Insect Consumption: Does Entomophagy Have a Future in Madagascar?

Narilala Randrianarison<sup>1,2,\*</sup>, Herimihamina Andriamazaoro<sup>2</sup>, Ny Antsa Rabenjanahary<sup>1</sup>

<sup>1</sup> University of Agricultural Sciences (ESSA) Antananarivo, Madagascar

<sup>2</sup> Centre National de la Recherche Appliquée au Développement Rural (FOFIFA), Antananarivo, Madagascar

## Context

Food situation of great concern in Madagascar (ESMOND, 2013):

- 31% of households in a situation of severe food insecurity (33% in rural areas, 19% in urban areas).
- More than half of households with a poor (quantity) diet.
- About 2 out of 3 households with a poor quality diet (animal products increasingly inaccessible)

## Objectives

- Assess the importance of insect consumption in urban areas and identify the reasons
- Study the acceptance of insect-based foods in rural areas

## Materials and Methods

### Step 1 : urban area

- Study site: Analamanga Region, Central Highland of Madagascar
- Survey of Stratified Sampling in Urban Area (66 participants including 30 men and 36 women; working in the private sector, informal sector, tax free zones or civil servant)
- Adressed themes: the consumption of insects, the acceptability of some foods compared to insect-based foods by using photos
- Compared food groups:
  - 1<sup>st</sup> food group: Usual Cookies vs Cookies with insect powder
  - 2<sup>nd</sup> food group: Usual rolls vs rolls with insects (which can contain visible pieces of insects)
  - 3<sup>rd</sup> food group: Usual Muffins Vs Muffins with insects (which can contain visible whole crickets)

### Step 2 : rural area

- Study site: Sandrandahy, Amoron'i Mania Region, Southern Highland of Madagascar
- Tasting session during the ProciNut training workshop in rural area (16 participants)
- Compared food groups:
  - 1<sup>st</sup> food group: Insect powder based-cookies (locust) vs Insect powder based-cookies with chocolate.
  - 2<sup>nd</sup> food group: Insect powder based-cookies (cricket) vs Muffins with crickets.

## Results

### Urban area:

80% of respondents already consumed insects (83% men and 78% women):

- Influenced by the community (parents, children of the same age ...)
- Accessibility of insects (abundance, swarm, abundance during the period of childhood...)

Most consumed insects in urban area

- Locust (3 out of 4 people)
- Beetle (2 out of 3 people)

20% of respondents in urban area never consumed insects (17% men and 22% women), because of: Hygiene (mostly women), Ignorance, prohibited because of religion

### Willingness to eat insects

- Yes for 36% of the respondents if the nutritional value of insects as food known
- No for 64% of the respondents because of disgust, not convinced, prohibited (religion)

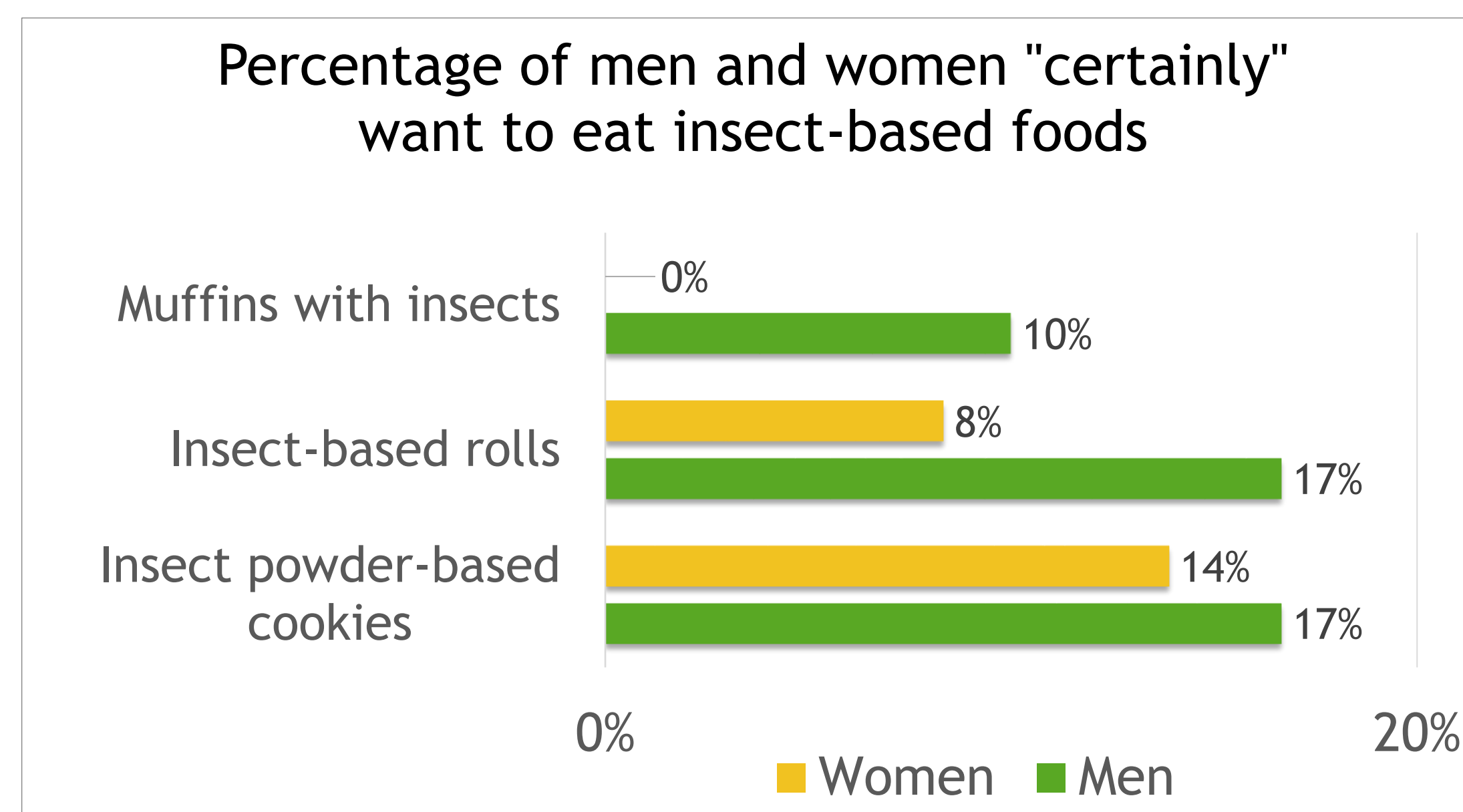


Fig.1: Willingness to eat insect-based foods in urban area

### Reasons for consuming insect-based foods

- The desire to taste (new food, unusual ...)
- The appearance (insects not visible) except for muffins

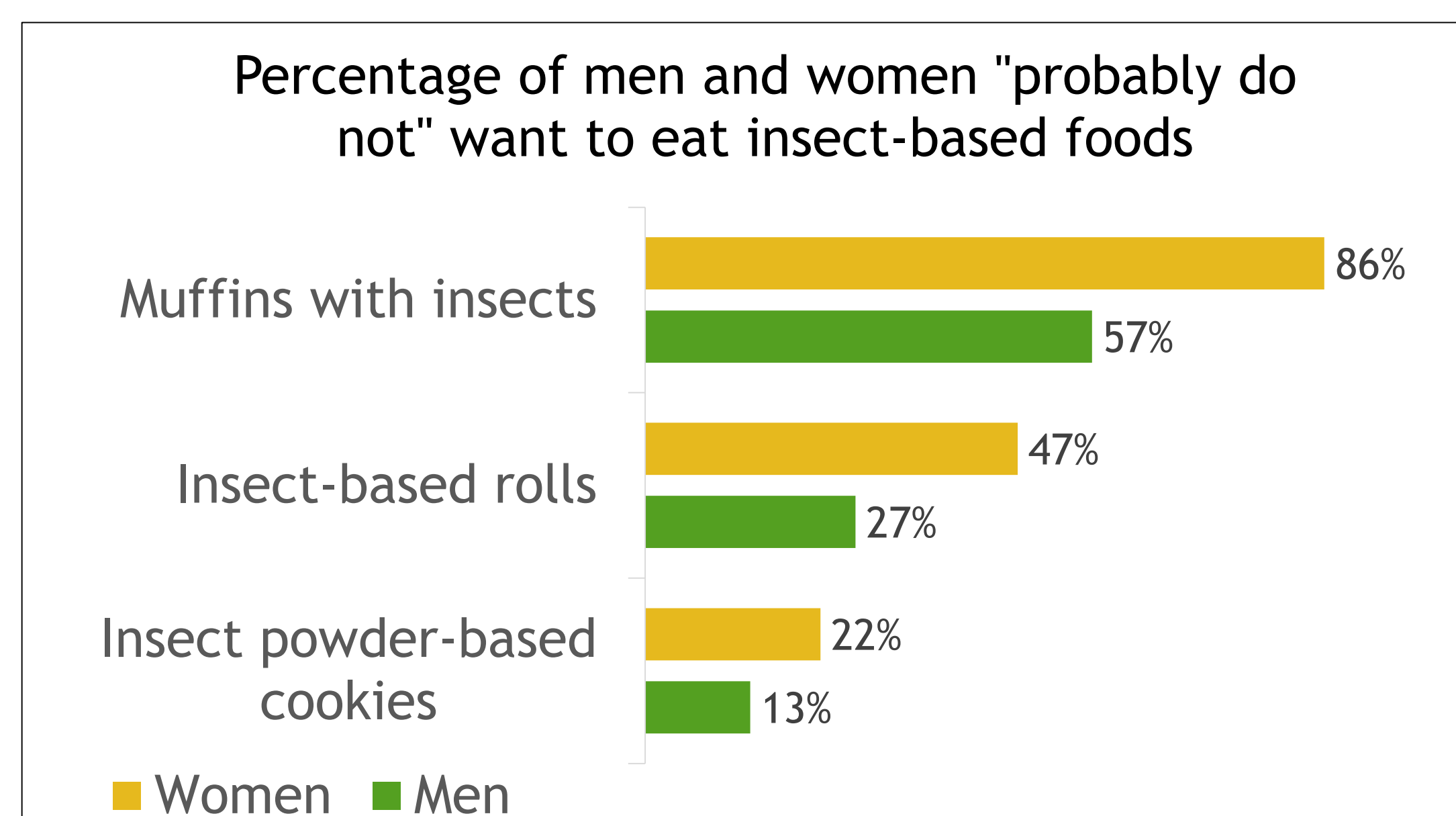


Fig.2: Unwillingness to eat insect-based foods in urban area

### Reasons given for refusal insect-based foods

- The appearance: visible insects, unappetizing, preference to powder, especially for muffins
- Disgust: visible insects (muffins); existence of

pieces of insects (rolls); insect powder (cookies); looks like seeing insects on foods

- Prohibited because of religion
- Allergy problems
- The apprehension on the taste of the insect in sweet food (preference to salted)

### Rural area:

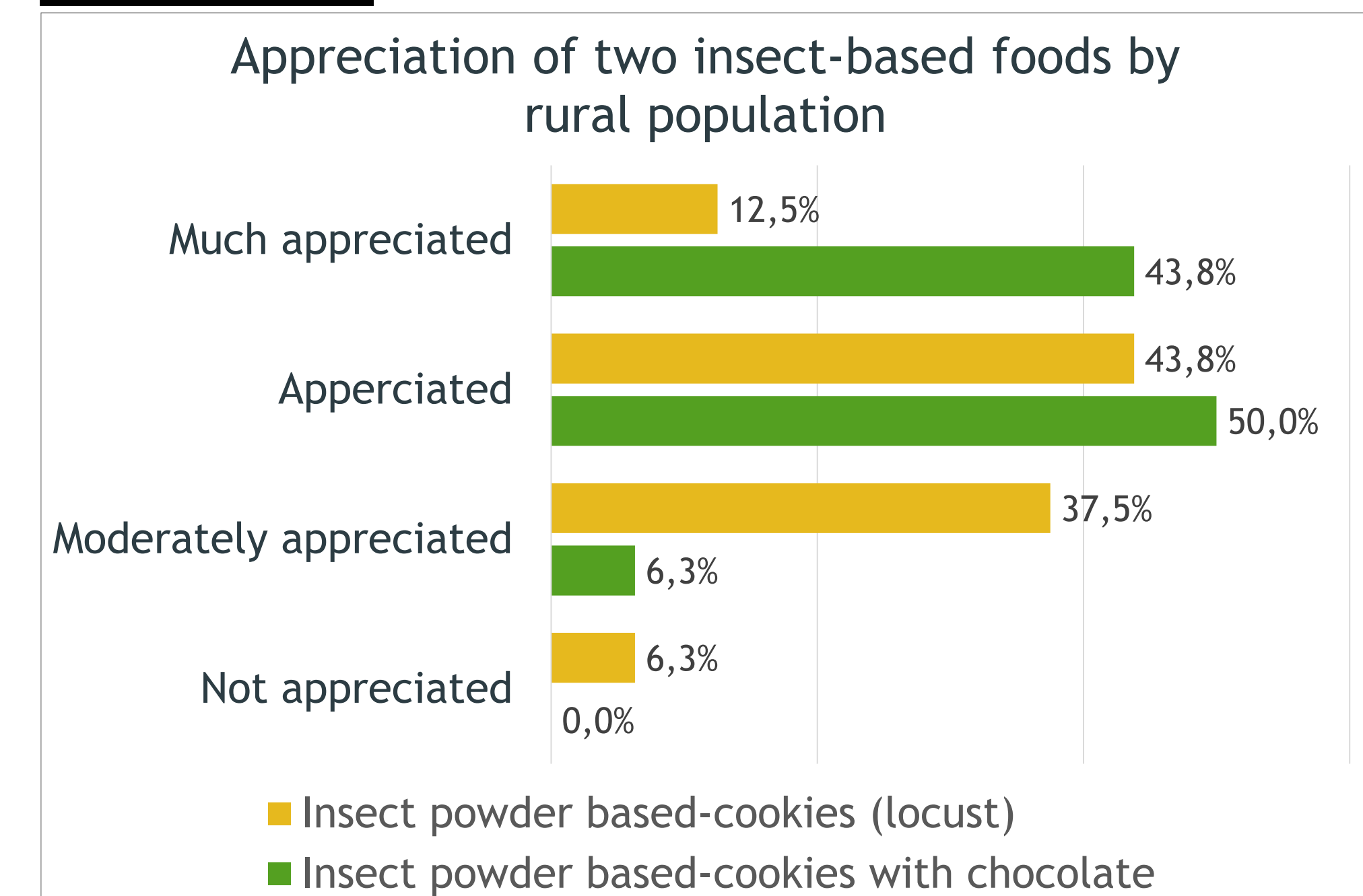


Fig.3: Acceptability of insect-based foods in rural area

Insect powder based-cookies (locust) less appreciated than Insect powder based-cookies with chocolate:

- Pronounced odor of insect for the Insect powder based-cookies (locust)
- Locust odor attenuated for the Insect powder based-cookies with chocolate

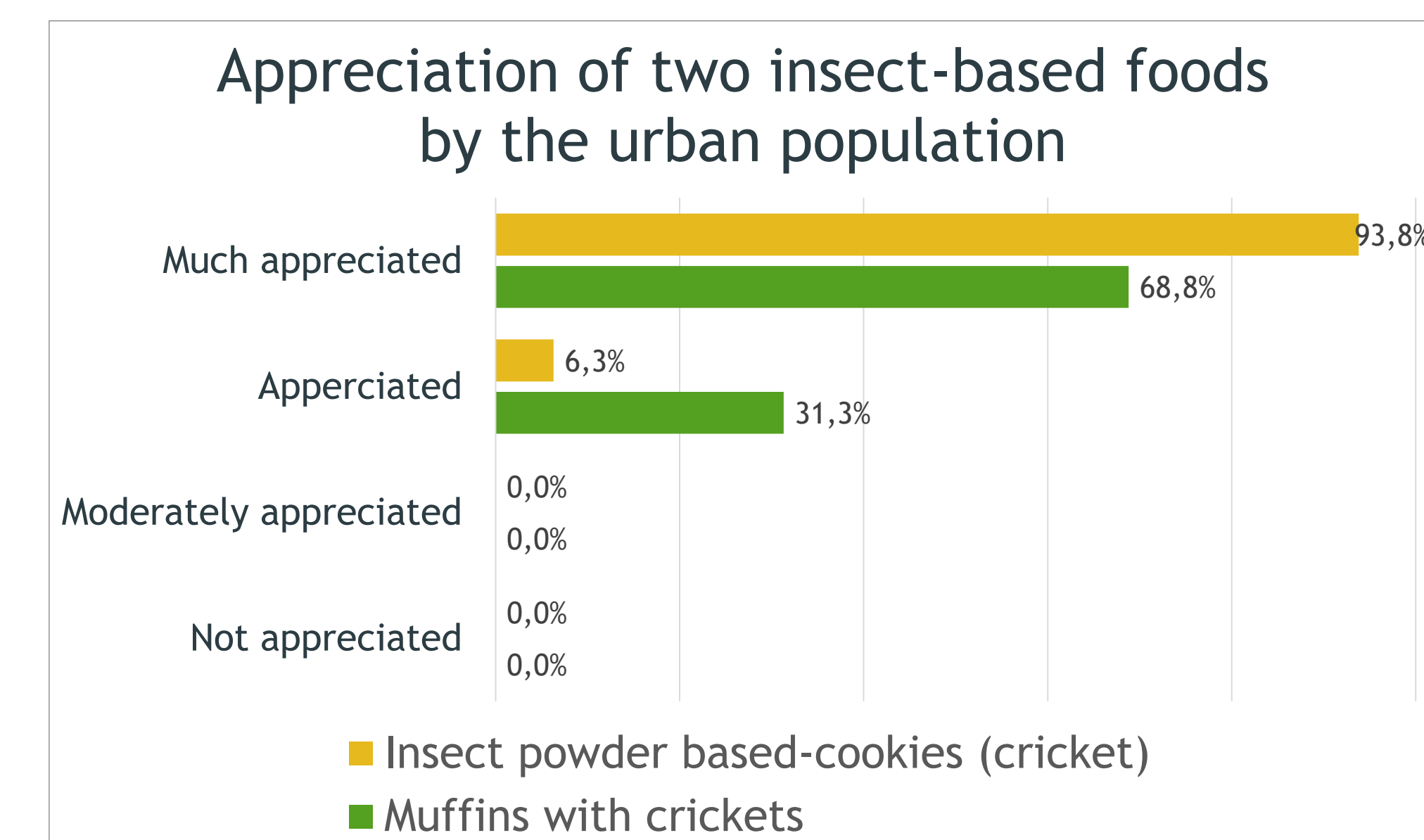


Fig.4: Acceptability of insect-based foods in rural area

Insect powder-based cookies (cricket) more appreciated than Muffins with crickets:

- Good taste, willing to prepare at home, surprising for the Insect powder based-cookies (cricket)
- Presence of visible pieces of insects, unappetizing; unusual; however surprising for the Muffins with crickets

## Discussion

- The development of insect consumption can rely on men (more willing to taste than women)
- Insect processing may affect the acceptability of edible insects

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\* Contact: Narilala Randrianarison, narilalar@yahoo.fr

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