

Adoption of a disruptive food : a qualitative survey on organic consumers' representations and perceptions of Spirulina

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INTRODUCTION

In food innovation, consumer acceptance is a key to success. Food alternatives are in development and meet new trends. Uncommon products such as Spirulina microalgae become popular due to high protein, vitamin and mineral content, but seem to hardly integrate people's diet.

Spirulina is largely studied for medical and biomass purposes. However consumers representations and perception of Spirulina is uncovered.

OBJECTIVE

The study aimed at identifying organic consumers representations and perceptions of Spirulina, and measuring tradeoffs between expected health benefits, sensory qualities and environment friendliness.

METHOD



RESULTS

Table 1: Different consumer types: effects of knowledge and experience on adoption or rejection of Spirulina

Consumer groups & profiles	Spirulina non-eaters groups		Spirulina eaters groups
	"naïve"	"novice"	"well-informed"
Level of knowledge & experience with spirulina	Evocations only: medicine, spiral shape	Basic knowledge: color, algae, global health benefit	Familiarity: knowledge of spirulina nutritional benefits + representation as algae Experience of consumption as food supplement
Adoption or rejection ?	IIDP* not started	IIDP* involuntary started by collecting information	Last stage of IIDP* reached, but adoption not guaranteed: 3 rejection of spirulina (unmet expectations).

*IIDP (Individual Innovation-Decision Process) stages: 1.collect information about an innovation, 2.form an opinion, 3.make the decision to buy or not, 4.confirm adoption or rejection. (Rogers, 2003, [a])

Knowledge & product experience (Table 1):

- Among Spirulina non-eaters, few could tell what Spirulina is.
- Spirulina was **associated to marine algae** by "novices" and "well-informed".
- Familiarity** with spirulina (knowledge + experience with Spirulina): not enough to accept it as an ordinary food product.

Characteristics driving or not adoption of spirulina (Table 2):

- Spirulina's **relative advantage** (health benefits): drove or could **drive Spirulina to adoption**.
- Degrees of compatibility, complexity, trialability and observability, were likely to increase the risk of rejection, related to sensory properties, usage, and marketing mix.
- Spirulina **environmental impacts were ambiguous**: organic label and environment-friendliness were positive in comparison to meat, but spirulina is too new to identify the impacts of its production on the environment.

Table 2: Satisfaction level of product characteristics applied on spirulina illustrated by organic consumers perceptions

Perceived product characteristics (Robertson, 1971 [b])	Level of satisfaction of characteristics **	Arguments from organic consumers
Relative advantage	High	Exceptional nutritional value (protein, iron, vitamins, minerals) → health benefits (booster, energizer, anti-fatigue) Good alternative to meat: for health and environment
Compatibility	Low	No consistency of algae with daily French cooking habits
Complexity	High	Difficulty to use spirulina Unpleasant and uncommon sensory properties: color & flavor
Trialability	Low	High price of spirulina ; limited visibility on the shelf
Observability	Moderate	For some participants, a lack of visible personal health effect Lack of knowledge about spirulina environmental impacts

**Color fonts highlight the effects of satisfaction level on acceptability: in green characteristics that increase the likelihood of acceptance, in red characteristics that limit the likelihood of acceptance.

CONCLUSION

This qualitative survey with organic consumers highlighted that depending on familiarity with spirulina, main attributes are recognized but not sufficient to explain adoption or rejection reasons.

Consumers make tradeoffs between health benefits, sensory qualities and environment friendliness.

Spirulina health benefits appeared important. However, sensory qualities were main drivers of resistance. Environment friendliness was discussed.

→ To encourage consumers to try and adopt spirulina in their diet, spirulina products need more compatibility with cooking habits, less complexity (sensory & usage properties), good trialability (price and visibility on shelf) and good observability about its effects on health and the environment. Success of disruptive foods containing spirulina will depend upon companies' ability to listen to consumers.

[a] Rogers, E., 2003. Diffusion of Innovations, 5th ed. Free press, New York.

[b] Robertson, T.S., 1971. Innovative behaviour and communication, Holt Reinhart and Winston. ed, Series in Marketing. USA.