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# Can 3D food printing improve the visual appreciation of *hachis Parmentier* ?

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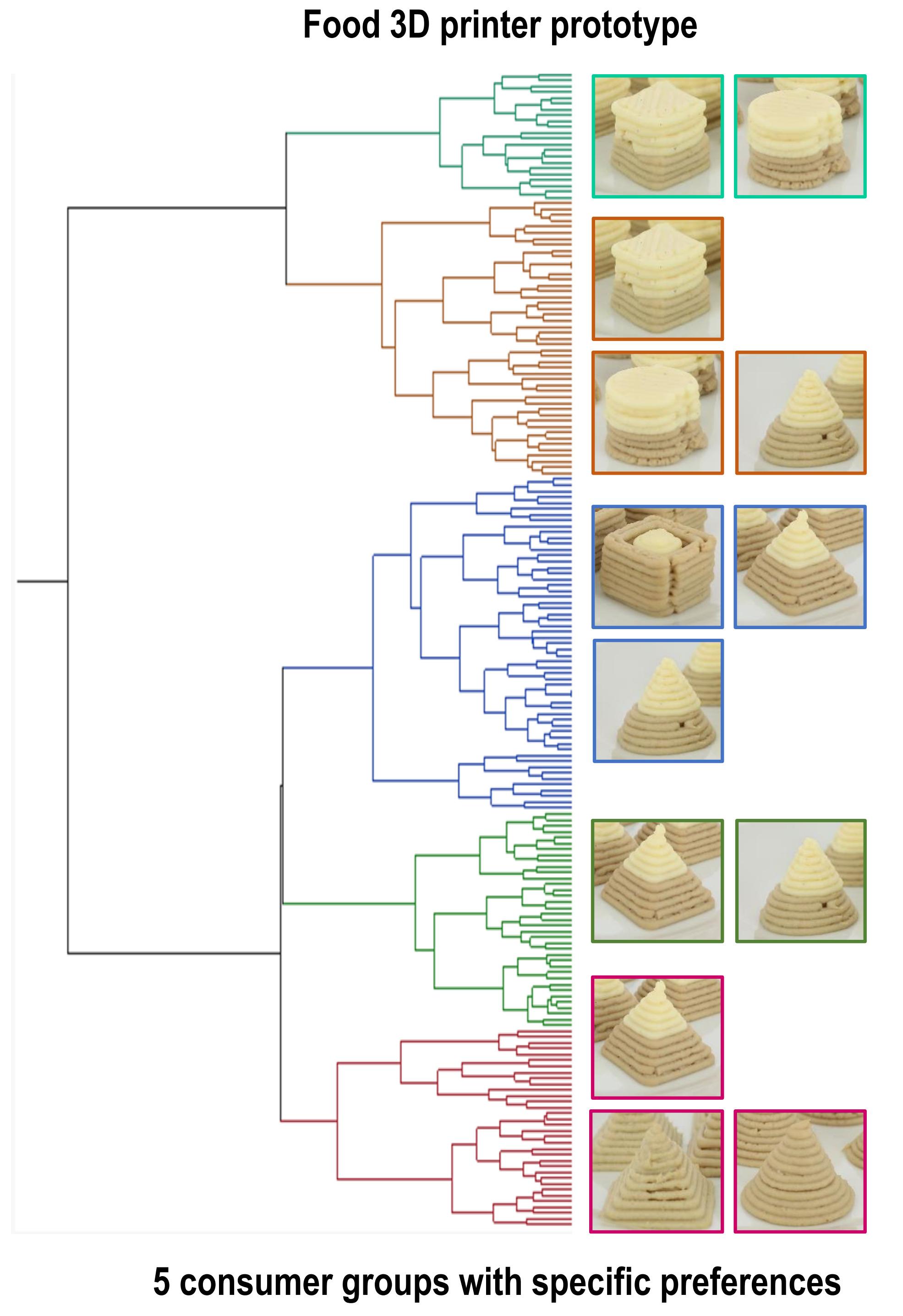
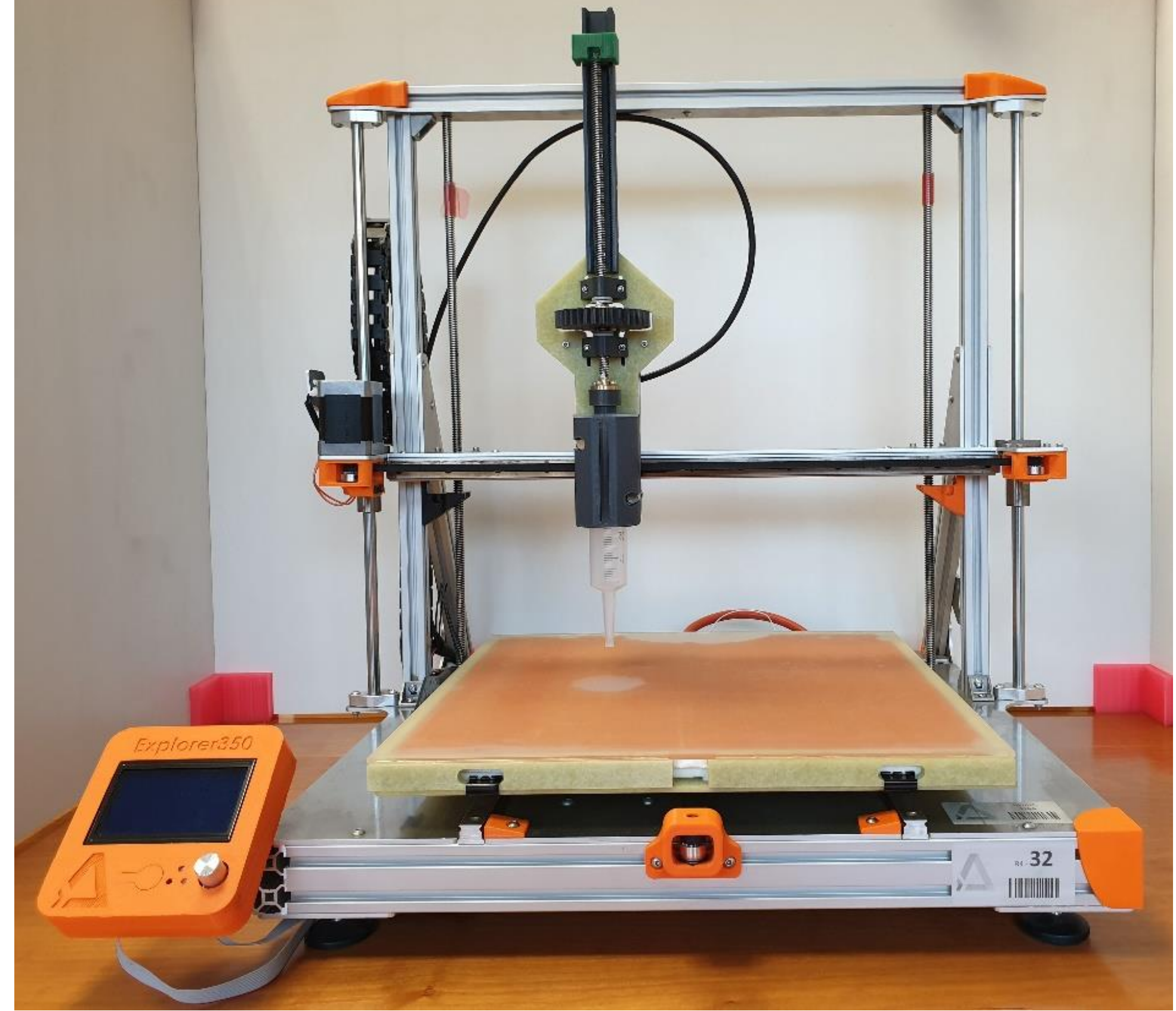
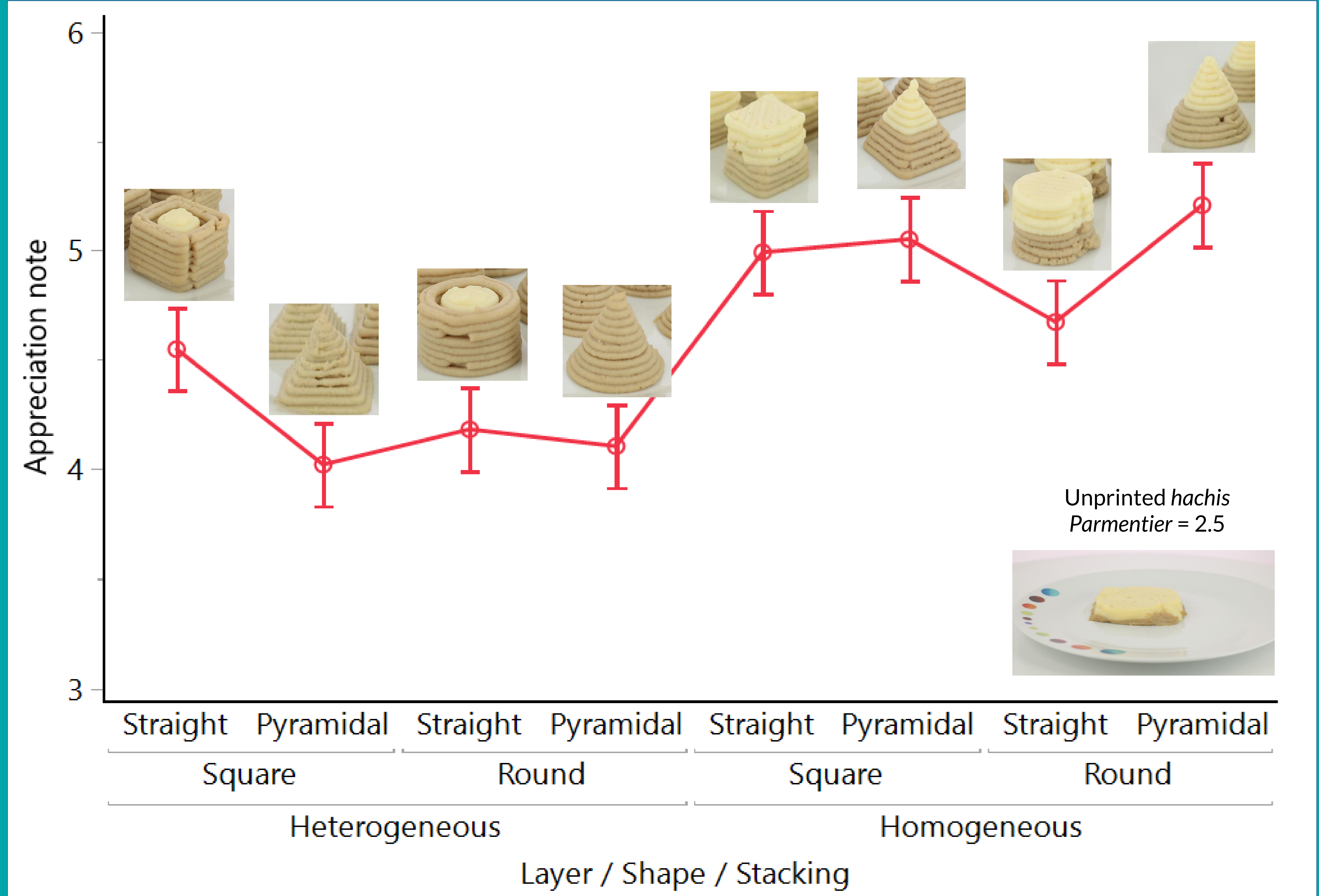
**BACKGROUND**  
 It is difficult to offer different appetizing presentations for foods with modified textures intended for specific populations (elderly, dysphagic, etc.).

- METHODS**
- Products from Nutrisens: Mixed gratin dauphinois and mixed *hachis Parmentier*.
  - Control product: unprinted *hachis Parmentier* with traditional presentation (90g of each mixed product).
  - 8 print designs on plate : 2 shapes (round or square), 2 types of layers (homogeneous or heterogeneous) and 2 stacking of the layers (straight or pyramidal). Each plate= 6 printed *hachis Parmentier* of 30g (total =180g per plate).
  - Printing parameters : nozzle diameter of 3.7 mm, filling rate at 100 % and printing speed of 10 mm/s.
  - Rating (between 0 and 10) by 250 consumers : 48 in sensory analysis boxes and 202 using an online survey with pictures of the plates).

- RESULTS**
- The unprinted *hachis Parmentier* was the least popular.
  - All the printed shapes were more appreciated than the unprinted *hachis Parmentier*.
  - The most popular design was : round shape, homogeneous layers and pyramidal stacking.

- PERSPECTIVES**
- Other designs proposed by consumers: classic big shape, sphere, polygon, star, cylinder.
  - To improve : color and aspect of meat, brown the top, thin layers, less meat and more potato.
  - Next step : interview specific populations (dysphagic).

3D printed *hachis Parmentier* is visually more appreciated than a traditional presentation. 3D designs with homogeneous layers are preferred.



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