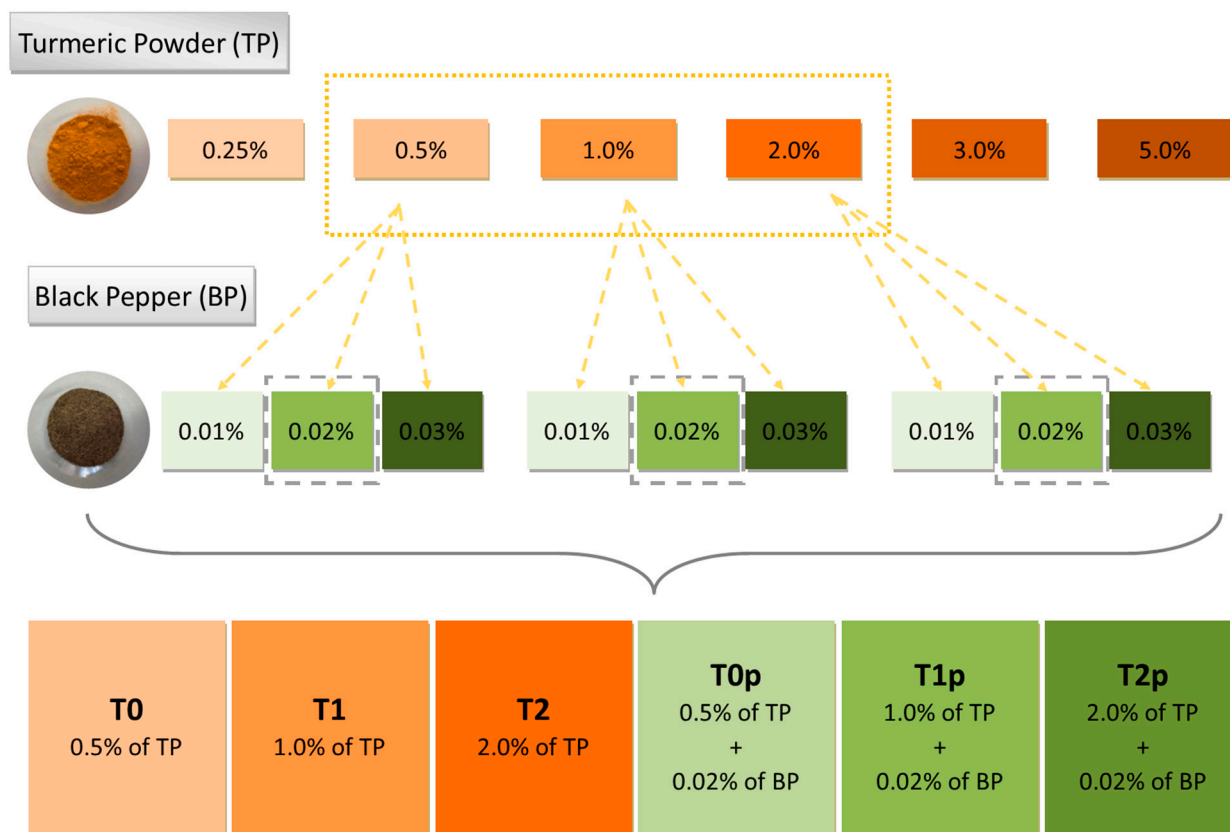


## Supplementary material



**Figure S1.** Preliminary study design illustrating the stages of the flavoured ice cream samples selection.

**Table S1.** Microbiological results of ice cream samples.

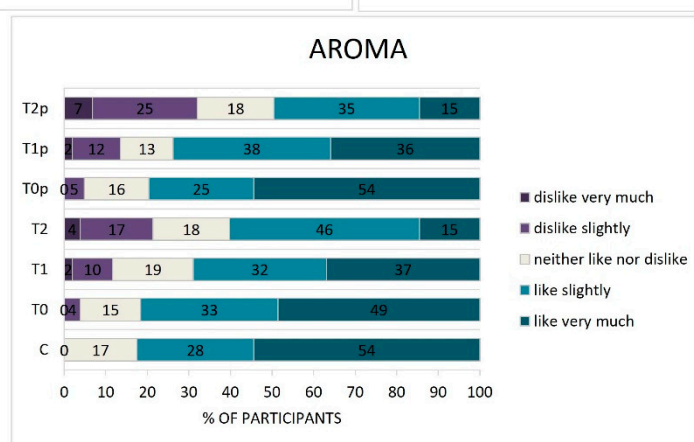
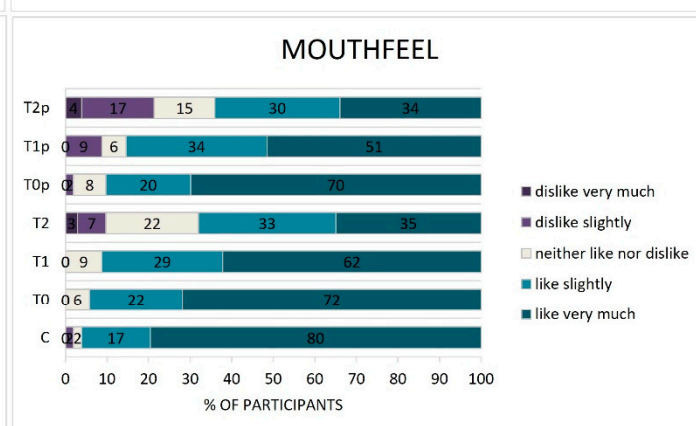
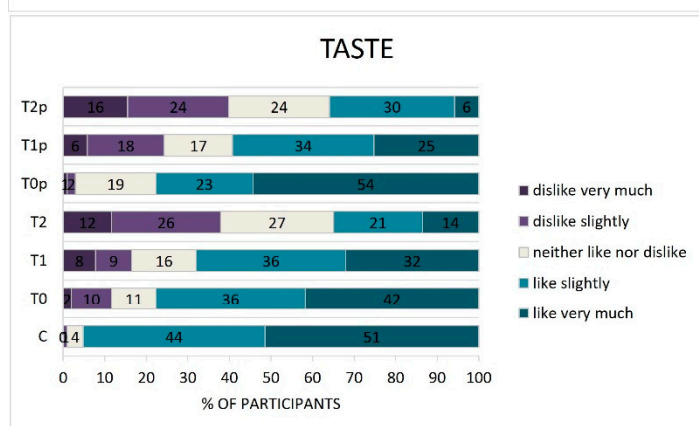
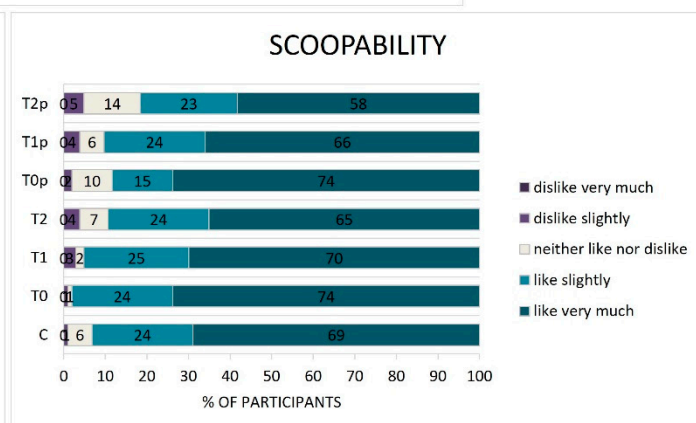
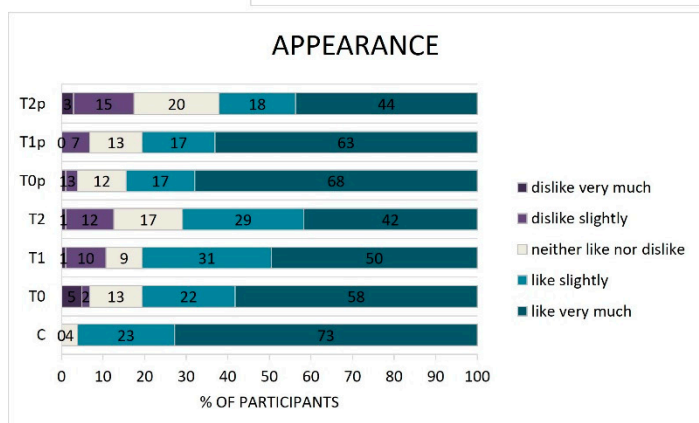
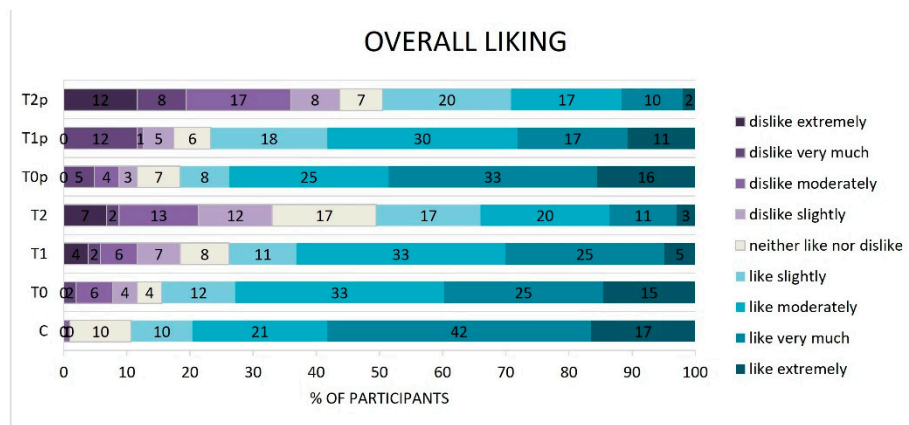
| Ice<br>cream | cfu (log)                 |                                   |                                  |                            |                                   |
|--------------|---------------------------|-----------------------------------|----------------------------------|----------------------------|-----------------------------------|
|              | <i>Enterobacteriaceae</i> | Aerobic<br>mesophilic<br>bacteria | <i>Staphylococcus<br/>aureus</i> | <i>Salmonella<br/>spp.</i> | <i>Listeria<br/>monocytogenes</i> |
| C            | <10                       | 1.9×10 <sup>2</sup>               | <10                              | n.d./25 g                  | n.d./25 g                         |
| T0           | <10                       | 1.2×10 <sup>2</sup>               | <10                              | n.d./25 g                  | n.d./25 g                         |
| T1           | <10                       | 1.2×10 <sup>2</sup>               | <10                              | n.d./25 g                  | n.d./25 g                         |
| T2           | <10                       | 78                                | <10                              | n.d./25 g                  | n.d./25 g                         |
| T0p          | <10                       | 1.4×10 <sup>2</sup>               | <10                              | n.d./25 g                  | n.d./25 g                         |
| T1p          | <10                       | 1×10 <sup>2</sup>                 | <10                              | n.d./25 g                  | n.d./25 g                         |
| T2p          | <10                       | 54                                | <10                              | n.d./25 g                  | n.d./25 g                         |

n.d. = not detected

**Table S2.** Pearson's correlation matrix between the addition of turmeric and black pepper, and liking scores and purchase and consumption intent for ice cream samples.

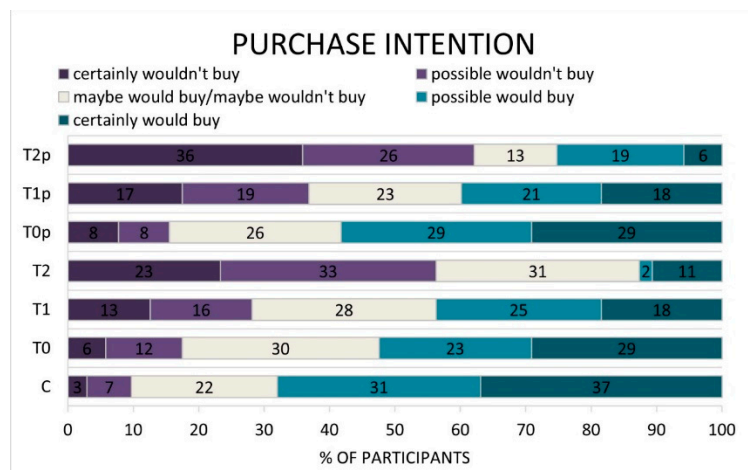
| Variables                    | Turmeric Addition | Black Pepper Addition | APPEARANCE    | SCOOPABILITY  | MOUTHFEEL     | TASTE         | AROMA         | OVERALL LIKING | PURCHASE      | CONSUMPTION   |
|------------------------------|-------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|---------------|
| <b>Turmeric Addition</b>     | <b>1</b>          | 0.204                 | <b>-0.934</b> | <b>-0.785</b> | <b>-0.960</b> | <b>-0.984</b> | <b>-0.975</b> | <b>-0.987</b>  | <b>-0.993</b> | <b>-0.984</b> |
| <b>Black Pepper Addition</b> | 0.204             | <b>1</b>              | -0.096        | -0.558        | -0.356        | -0.219        | -0.231        | -0.265         | -0.251        | -0.341        |
| APPEARANCE                   | <b>-0.934</b>     | -0.096                | <b>1</b>      | 0.637         | <b>0.853</b>  | <b>0.918</b>  | <b>0.916</b>  | <b>0.940</b>   | <b>0.915</b>  | <b>0.917</b>  |
| SCOOPABILITY                 | <b>-0.785</b>     | -0.558                | 0.637         | <b>1</b>      | <b>0.907</b>  | <b>0.806</b>  | <b>0.866</b>  | <b>0.845</b>   | <b>0.823</b>  | <b>0.862</b>  |
| MOUTHFEEL                    | <b>-0.960</b>     | -0.356                | <b>0.853</b>  | <b>0.907</b>  | <b>1</b>      | <b>0.965</b>  | <b>0.970</b>  | <b>0.973</b>   | <b>0.974</b>  | <b>0.987</b>  |
| TASTE                        | <b>-0.984</b>     | -0.219                | <b>0.918</b>  | <b>0.806</b>  | <b>0.965</b>  | <b>1</b>      | <b>0.979</b>  | <b>0.982</b>   | <b>0.997</b>  | <b>0.979</b>  |
| AROMA                        | <b>-0.975</b>     | -0.231                | <b>0.916</b>  | <b>0.866</b>  | <b>0.970</b>  | <b>0.979</b>  | <b>1</b>      | <b>0.994</b>   | <b>0.983</b>  | <b>0.981</b>  |
| OVERALL LIKING               | <b>-0.987</b>     | -0.265                | <b>0.940</b>  | <b>0.845</b>  | <b>0.973</b>  | <b>0.982</b>  | <b>0.994</b>  | <b>1</b>       | <b>0.989</b>  | <b>0.993</b>  |
| PURCHASE                     | <b>-0.993</b>     | -0.251                | <b>0.915</b>  | <b>0.823</b>  | <b>0.974</b>  | <b>0.997</b>  | <b>0.983</b>  | <b>0.989</b>   | <b>1</b>      | <b>0.988</b>  |
| CONSUMPTION                  | <b>-0.984</b>     | -0.341                | <b>0.917</b>  | <b>0.862</b>  | <b>0.987</b>  | <b>0.979</b>  | <b>0.981</b>  | <b>0.993</b>   | <b>0.988</b>  | <b>1</b>      |

Values in bold are different from 0 with a significance level  $\alpha=0.05$ .



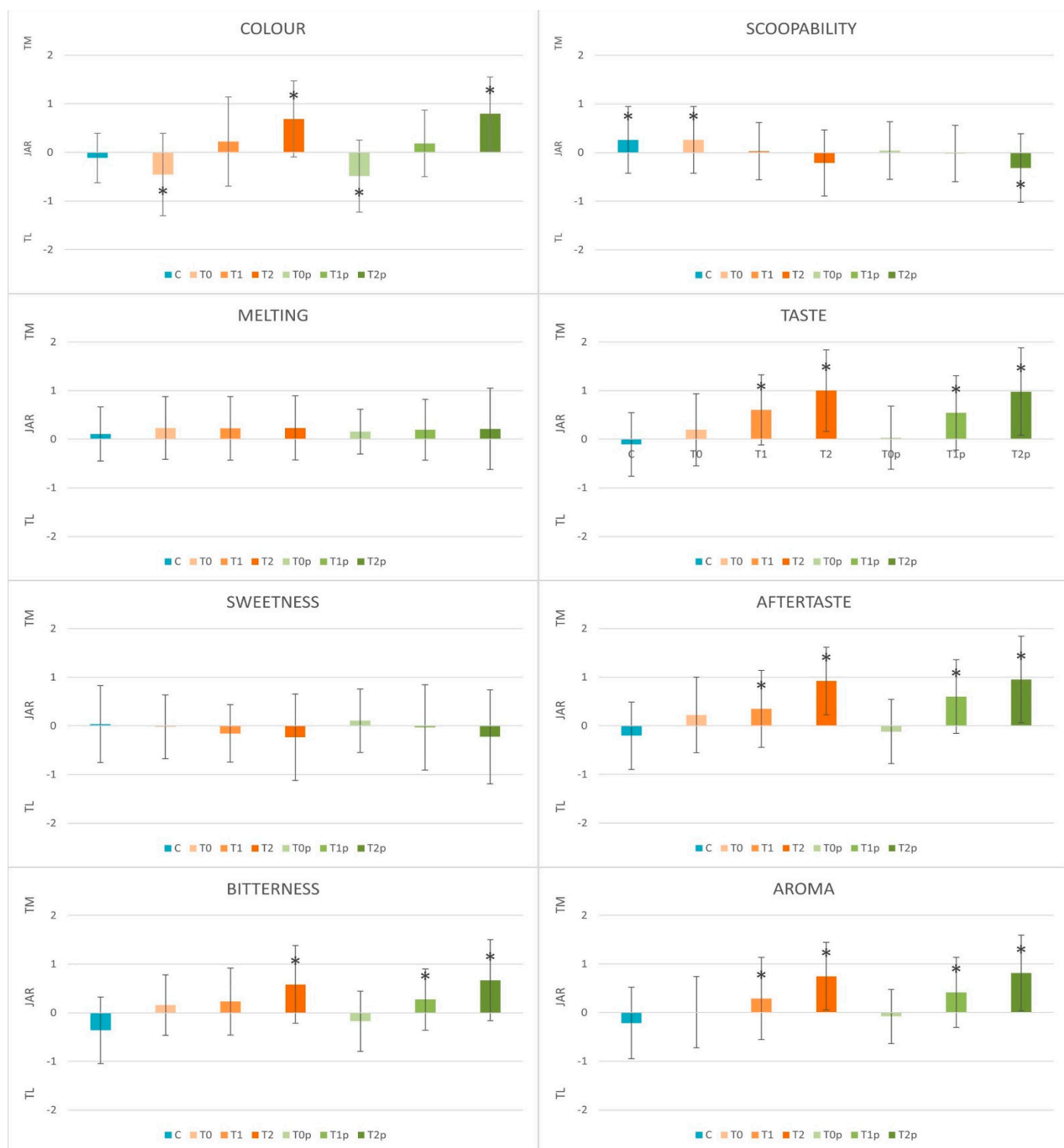
Values are percentages of consumers ( $n=103$ ). C – control sample, T0, T1, T2 – samples with 0.5%;1.0% and 2.0% of turmeric, p – samples with added 0.02% black pepper.

**Figure S2.** Liking scores percentage of respondents ( $n=103$ ) for ice cream samples.



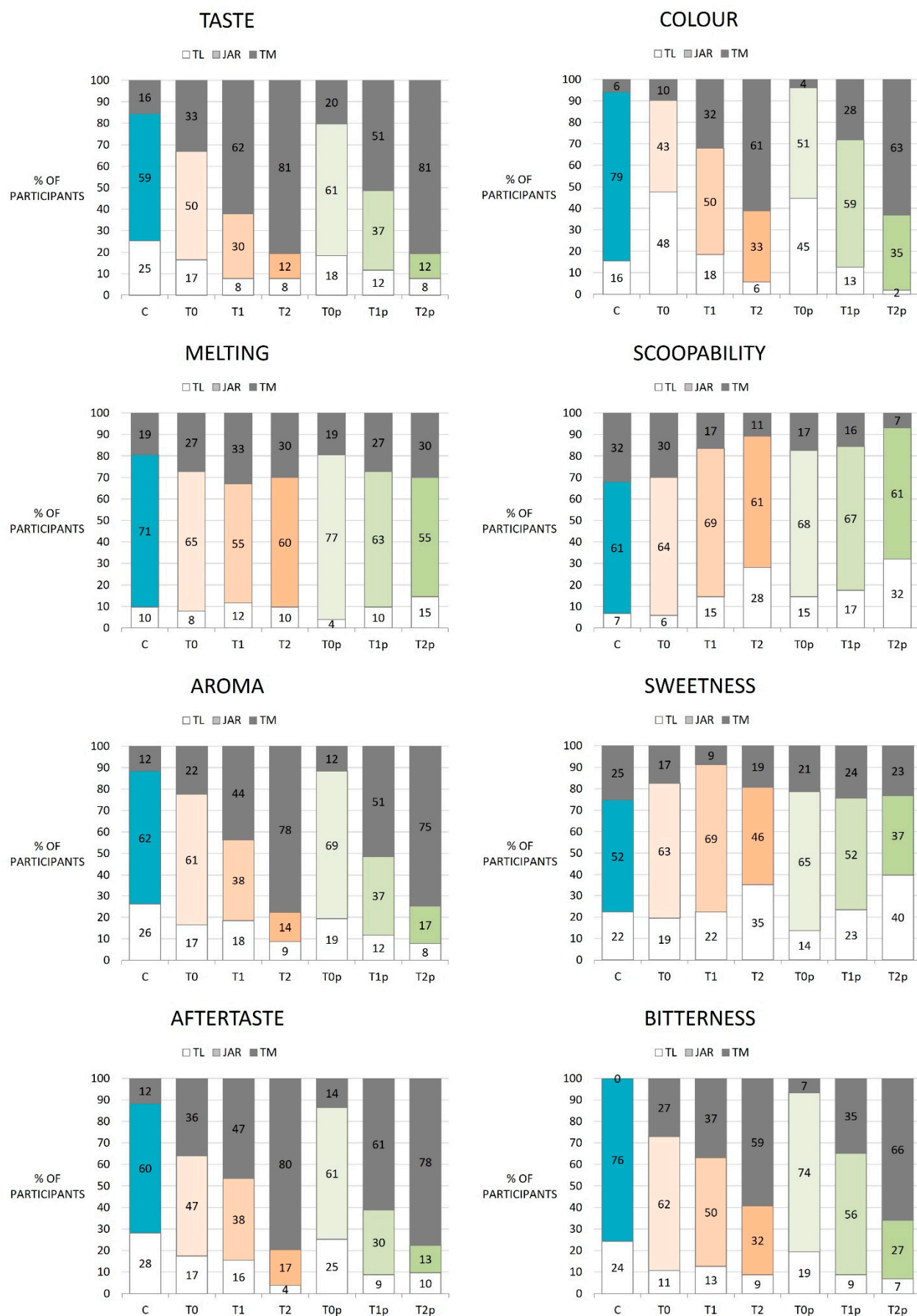
Values are percentages of consumers ( $n=103$ ). C – control sample, T0, T1, T2 – samples with 0.5%;1.0% and 2.0% of turmeric, p – samples with added 0.02% black pepper.

**Figure S3.** Purchase intention scores percentage of respondents ( $n=103$ ) for ice cream samples.



The intensity of attributes evaluated using a 5-point JAR scale (-2 = too weak, -1 = slightly weak, 0 = ideal/just about right, +1 = slightly strong, +2 = too strong); values are means  $\pm$  SD ( $n=103$ ); \* significantly different using the Dunnett test ( $p<0.05$ ) in the deviation from 0 ("just right/ideal"). C – control sample, T0, T1, T2 – samples with 0.5%;1.0% and 2.0% of turmeric, p – samples with added 0.02% black pepper.

**Figure S4.** Deviations of the intensity of sensory attributes from the ideal (JAR) value for ice cream samples.



Values are percentages of consumers (n=103); TL – too little in white, JAR – just-about-right/ideal in colour, TM – too much in grey.  
C – control sample, T0, T1, T2 – samples with 0.5%;1.0% and 2.0% of turmeric, p – samples with added 0.02% black pepper.

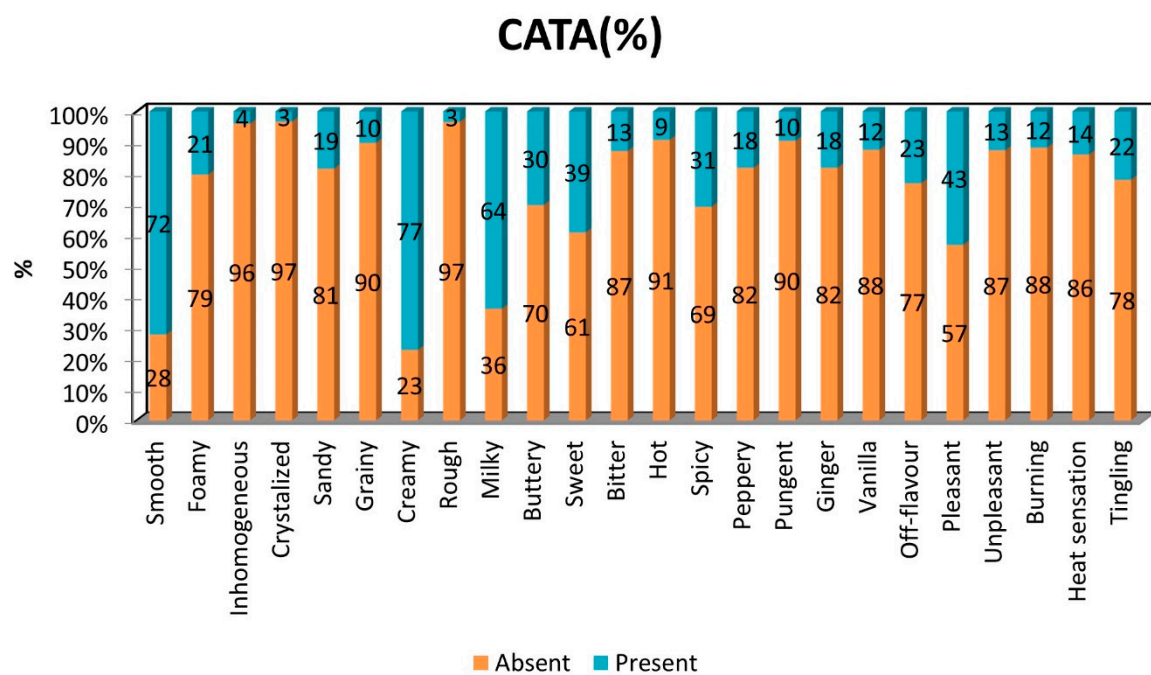
**Figure S5.** JAR scale percentage of respondents (n=103) grouped in three levels.

**Table S3.** Pearson's correlation matrix between the addition of turmeric and black pepper, and JAR values for ice cream samples.

| Variables                    | Turmeric Addition | Black Pepper Addition | Intensity of colour | Intensity of scoopability | Intensity of melting | Intensity of taste | Intensity of sweetness | Intensity of aftertaste | Intensity of bitterness | Intensity of aroma |
|------------------------------|-------------------|-----------------------|---------------------|---------------------------|----------------------|--------------------|------------------------|-------------------------|-------------------------|--------------------|
| <b>Turmeric Addition</b>     | <b>1</b>          | 0.204                 | <b>0.890</b>        | <b>-0.942</b>             | 0.673                | <b>0.977</b>       | <b>-0.891</b>          | <b>0.956</b>            | <b>0.952</b>            | <b>0.983</b>       |
| <b>Black Pepper Addition</b> | 0.204             | <b>1</b>              | 0.084               | -0.452                    | -0.128               | 0.116              | 0.177                  | 0.181                   | 0.148                   | 0.235              |
| Intensity of colour          | <b>0.890</b>      | 0.084                 | <b>1</b>            | <b>-0.857</b>             | 0.417                | <b>0.912</b>       | <b>-0.905</b>          | <b>0.876</b>            | <b>0.819</b>            | <b>0.920</b>       |
| Intensity of scoopability    | <b>-0.942</b>     | -0.452                | <b>-0.857</b>       | <b>1</b>                  | -0.449               | <b>-0.887</b>      | 0.746                  | <b>-0.852</b>           | <b>-0.830</b>           | <b>-0.924</b>      |
| Intensity of melting         | 0.673             | -0.128                | 0.417               | -0.449                    | <b>1</b>             | 0.729              | -0.700                 | 0.729                   | <b>0.823</b>            | 0.662              |
| Intensity of taste           | <b>0.977</b>      | 0.116                 | <b>0.912</b>        | <b>-0.887</b>             | 0.729                | <b>1</b>           | <b>-0.938</b>          | <b>0.973</b>            | <b>0.968</b>            | <b>0.987</b>       |
| Intensity of sweetness       | <b>-0.891</b>     | 0.177                 | <b>-0.905</b>       | 0.746                     | -0.700               | <b>-0.938</b>      | <b>1</b>               | <b>-0.883</b>           | <b>-0.896</b>           | <b>-0.893</b>      |
| Intensity of aftertaste      | <b>0.956</b>      | 0.181                 | <b>0.876</b>        | <b>-0.852</b>             | 0.729                | <b>0.973</b>       | <b>-0.883</b>          | <b>1</b>                | <b>0.981</b>            | <b>0.985</b>       |
| Intensity of bitterness      | <b>0.952</b>      | 0.148                 | <b>0.819</b>        | <b>-0.830</b>             | <b>0.823</b>         | <b>0.968</b>       | <b>-0.896</b>          | <b>0.981</b>            | <b>1</b>                | <b>0.963</b>       |
| Intensity of aroma           | <b>0.983</b>      | 0.235                 | <b>0.920</b>        | <b>-0.924</b>             | 0.662                | <b>0.987</b>       | <b>-0.893</b>          | <b>0.985</b>            | <b>0.963</b>            | <b>1</b>           |

Values in bold are different from 0 with a significance level  $\alpha=0.05$ .





**Figure S6.** Summary CATA frequency (%) for all ice cream samples.

**Table S4.** Pearson's correlation matrix between the addition of turmeric and black pepper, and CATA terms for ice cream samples.

| Variables             | Turmeric Addition | Black pepper Addition | Milky         | Buttery       | Sweet         | Bitter        | Hot           | Spicy         | Peppery       | Pungent       | Ginger        | Vanilla       | Off flavor    | Pleasant      | Unpleasant    | Smooth        | Foamy        | Inhomogeneous | Crystallized  | Sandy         | Grainy        | Creamy        | Rough         | Burning       | Heat sensation | Tingling      |
|-----------------------|-------------------|-----------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|--------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|----------------|---------------|
| Turmeric Addition     | 1                 | 0.204                 | <b>-0.935</b> | <b>-0.809</b> | <b>-0.984</b> | <b>0.901</b>  | <b>0.805</b>  | <b>0.930</b>  | 0.749         | <b>0.940</b>  | <b>0.927</b>  | <b>-0.851</b> | 0.621         | <b>-0.978</b> | <b>0.959</b>  | <b>-0.890</b> | 0.550        | 0.675         | -0.482        | <b>0.902</b>  | <b>0.947</b>  | <b>-0.965</b> | <b>0.884</b>  | <b>0.866</b>  | <b>0.826</b>   | <b>0.877</b>  |
| Black Pepper Addition | 0.204             | 1                     | -0.410        | -0.141        | -0.266        | 0.368         | 0.243         | 0.413         | <b>0.756</b>  | 0.016         | 0.329         | -0.302        | -0.051        | -0.215        | 0.304         | -0.349        | <b>0.874</b> | 0.061         | -0.393        | 0.431         | 0.234         | -0.284        | 0.026         | 0.585         | 0.492          | 0.118         |
| Milky                 | <b>-0.935</b>     | -0.410                | 1             | <b>0.874</b>  | <b>0.954</b>  | <b>-0.901</b> | <b>-0.841</b> | <b>-0.943</b> | <b>-0.818</b> | <b>-0.825</b> | <b>-0.931</b> | <b>0.897</b>  | -0.690        | <b>0.869</b>  | <b>-0.892</b> | <b>0.818</b>  | -0.722       | -0.481        | 0.662         | <b>-0.849</b> | <b>-0.882</b> | <b>0.867</b>  | <b>-0.791</b> | <b>-0.844</b> | <b>-0.900</b>  | <b>-0.823</b> |
| Buttery               | <b>-0.809</b>     | -0.141                | <b>0.874</b>  | 1             | <b>0.857</b>  | <b>-0.852</b> | -0.750        | <b>-0.851</b> | -0.580        | <b>-0.774</b> | <b>-0.916</b> | <b>0.967</b>  | <b>-0.952</b> | 0.723         | -0.707        | 0.590         | -0.550       | -0.264        | 0.735         | -0.612        | -0.633        | 0.642         | -0.590        | -0.541        | -0.699         | <b>-0.814</b> |
| Sweet                 | <b>-0.984</b>     | -0.266                | <b>0.954</b>  | <b>0.857</b>  | 1             | <b>-0.953</b> | <b>-0.874</b> | <b>-0.977</b> | <b>-0.803</b> | <b>-0.889</b> | <b>-0.949</b> | <b>0.896</b>  | -0.679        | <b>0.957</b>  | <b>-0.945</b> | <b>0.905</b>  | -0.603       | -0.597        | 0.521         | <b>-0.918</b> | <b>-0.920</b> | <b>0.937</b>  | <b>-0.838</b> | <b>-0.861</b> | <b>-0.825</b>  | <b>-0.923</b> |
| Bitter                | <b>0.901</b>      | 0.368                 | <b>-0.901</b> | <b>-0.852</b> | <b>-0.953</b> | 1             | <b>0.886</b>  | <b>0.984</b>  | <b>0.864</b>  | <b>0.756</b>  | <b>0.925</b>  | <b>-0.922</b> | 0.705         | <b>-0.872</b> | <b>0.917</b>  | <b>-0.894</b> | 0.644        | 0.404         | -0.458        | <b>0.868</b>  | <b>0.799</b>  | <b>-0.862</b> | 0.739         | <b>0.810</b>  | 0.696          | <b>0.955</b>  |
| Hot                   | <b>0.805</b>      | 0.243                 | <b>-0.841</b> | -0.750        | <b>-0.874</b> | <b>0.886</b>  | 1             | <b>0.887</b>  | 0.749         | 0.588         | 0.733         | -0.737        | 0.608         | -0.736        | <b>0.820</b>  | <b>-0.875</b> | 0.441        | 0.274         | -0.308        | <b>0.813</b>  | <b>0.813</b>  | <b>-0.772</b> | <b>0.794</b>  | 0.696         | 0.629          | <b>0.927</b>  |
| Spicy                 | <b>0.930</b>      | 0.413                 | <b>-0.943</b> | <b>-0.851</b> | <b>-0.977</b> | <b>0.984</b>  | <b>0.887</b>  | 1             | <b>0.887</b>  | <b>0.795</b>  | <b>0.947</b>  | <b>-0.915</b> | 0.673         | <b>-0.908</b> | <b>0.917</b>  | <b>-0.904</b> | 0.704        | 0.503         | -0.542        | <b>0.920</b>  | <b>0.855</b>  | <b>-0.892</b> | 0.746         | <b>0.870</b>  | <b>0.804</b>   | <b>0.921</b>  |
| Peppery               | 0.749             | <b>0.756</b>          | <b>-0.818</b> | -0.580        | <b>-0.803</b> | <b>0.864</b>  | 0.749         | <b>0.887</b>  | 1             | 0.541         | <b>0.773</b>  | -0.722        | 0.347         | -0.753        | <b>0.825</b>  | <b>-0.861</b> | <b>0.854</b> | 0.408         | -0.420        | <b>0.882</b>  | 0.739         | <b>-0.801</b> | 0.586         | <b>0.918</b>  | 0.741          | 0.721         |
| Pungent               | <b>0.940</b>      | 0.016                 | <b>-0.825</b> | <b>-0.774</b> | <b>-0.889</b> | <b>0.756</b>  | 0.588         | <b>0.795</b>  | 0.541         | 1             | <b>0.892</b>  | <b>-0.800</b> | 0.626         | <b>-0.939</b> | <b>0.834</b>  | -0.709        | 0.440        | <b>0.764</b>  | -0.538        | <b>0.764</b>  | <b>0.842</b>  | <b>-0.870</b> | <b>0.771</b>  | 0.738         | <b>0.780</b>   | 0.732         |
| Ginger                | <b>0.927</b>      | 0.329                 | <b>-0.931</b> | <b>-0.916</b> | <b>-0.949</b> | <b>0.925</b>  | 0.733         | <b>0.947</b>  | <b>0.773</b>  | <b>0.892</b>  | 1             | <b>-0.971</b> | <b>0.772</b>  | <b>-0.906</b> | <b>0.857</b>  | <b>-0.763</b> | 0.714        | 0.551         | -0.701        | <b>0.821</b>  | <b>0.785</b>  | <b>-0.839</b> | 0.666         | <b>0.798</b>  | <b>0.832</b>   | <b>0.832</b>  |
| Vanilla               | <b>-0.851</b>     | -0.302                | <b>0.897</b>  | <b>0.967</b>  | <b>0.896</b>  | <b>-0.922</b> | -0.737        | <b>-0.915</b> | -0.722        | <b>-0.800</b> | <b>-0.971</b> | 1             | <b>-0.879</b> | <b>0.798</b>  | <b>-0.791</b> | 0.679         | -0.680       | -0.343        | 0.711         | -0.706        | -0.668        | 0.728         | -0.595        | -0.671        | -0.729         | <b>-0.838</b> |
| Off flavor            | 0.621             | -0.051                | -0.690        | <b>-0.952</b> | -0.679        | 0.705         | 0.608         | 0.673         | 0.347         | 0.626         | <b>0.772</b>  | <b>-0.879</b> | 1             | -0.518        | 0.507         | -0.365        | 0.354        | 0.042         | -0.667        | 0.360         | 0.397         | -0.411        | 0.417         | 0.265         | 0.467          | 0.704         |
| Pleasant              | <b>-0.978</b>     | -0.215                | <b>0.869</b>  | 0.723         | <b>0.957</b>  | <b>-0.872</b> | -0.736        | <b>-0.908</b> | -0.753        | <b>-0.939</b> | <b>-0.906</b> | <b>0.798</b>  | -0.518        | 1             | <b>-0.937</b> | <b>0.897</b>  | -0.549       | <b>-0.784</b> | 0.429         | <b>-0.933</b> | <b>-0.931</b> | <b>0.973</b>  | <b>-0.827</b> | <b>-0.897</b> | <b>-0.806</b>  | <b>-0.838</b> |
| Unpleasant            | <b>0.959</b>      | 0.304                 | <b>-0.892</b> | -0.707        | <b>-0.945</b> | <b>0.917</b>  | <b>0.820</b>  | <b>0.917</b>  | <b>0.825</b>  | <b>0.834</b>  | <b>0.857</b>  | <b>-0.791</b> | 0.507         | <b>-0.937</b> | 1             | <b>-0.950</b> | 0.548        | 0.574         | -0.302        | <b>0.903</b>  | <b>0.928</b>  | <b>-0.977</b> | <b>0.911</b>  | <b>0.891</b>  | 0.721          | <b>0.892</b>  |
| Smooth                | <b>-0.890</b>     | -0.349                | <b>0.818</b>  | 0.590         | <b>0.905</b>  | <b>-0.894</b> | <b>-0.875</b> | <b>-0.904</b> | <b>-0.861</b> | -0.709        | <b>-0.763</b> | 0.679         | -0.365        | <b>0.897</b>  | <b>-0.950</b> | 1             | -0.516       | -0.581        | 0.178         | <b>-0.958</b> | <b>-0.920</b> | <b>0.951</b>  | <b>-0.861</b> | <b>-0.906</b> | -0.675         | <b>-0.890</b> |
| Foamy                 | 0.550             | <b>0.874</b>          | -0.722        | -0.550        | -0.603        | 0.644         | 0.441         | 0.704         | <b>0.854</b>  | 0.440         | 0.714         | -0.680        | 0.354         | -0.549        | 0.548         | -0.516        | 1            | 0.319         | -0.732        | 0.644         | 0.486         | -0.538        | 0.246         | <b>0.756</b>  | <b>0.785</b>   | 0.396         |
| Inhomogeneous         | 0.675             | 0.061                 | -0.481        | -0.264        | -0.597        | 0.404         | 0.274         | 0.503         | 0.408         | <b>0.764</b>  | 0.551         | -0.343        | 0.042         | <b>-0.784</b> | 0.574         | -0.581        | 0.319        | 1             | -0.266        | 0.720         | 0.717         | -0.728        | 0.520         | 0.715         | 0.665          | 0.367         |
| Crystallized          | -0.482            | -0.393                | 0.662         | 0.735         | 0.521         | -0.458        | -0.308        | -0.542        | -0.420        | -0.538        | -0.701        | 0.711         | -0.667        | 0.429         | -0.302        | 0.178         | -0.732       | -0.266        | 1             | -0.366        | -0.339        | <b>-0.840</b> | -0.125        | -0.406        | <b>-0.768</b>  | -0.279        |
| Sandy                 | <b>0.902</b>      | 0.431                 | <b>-0.849</b> | -0.612        | <b>-0.918</b> | <b>0.868</b>  | <b>0.813</b>  | <b>0.920</b>  | <b>0.882</b>  | <b>0.764</b>  | <b>0.821</b>  | -0.706        | 0.360         | <b>-0.933</b> | <b>0.903</b>  | <b>-0.958</b> | 0.644        | 0.720         | -0.366        | 1             | <b>0.928</b>  | <b>-0.946</b> | <b>0.769</b>  | <b>0.962</b>  | <b>0.817</b>   | <b>0.814</b>  |
| Grainy                | <b>0.947</b>      | 0.234                 | <b>-0.882</b> | -0.633        | <b>-0.920</b> | <b>0.799</b>  | <b>0.813</b>  | <b>0.855</b>  | 0.739         | <b>0.842</b>  | <b>0.785</b>  | -0.668        | 0.397         | <b>-0.931</b> | <b>0.928</b>  | <b>-0.920</b> | 0.486        | 0.717         | -0.339        | <b>0.928</b>  | 1             | <b>-0.967</b> | <b>0.927</b>  | <b>0.897</b>  | <b>0.827</b>   | <b>0.798</b>  |
| Creamy                | <b>-0.965</b>     | -0.284                | <b>0.867</b>  | 0.642         | <b>0.937</b>  | <b>-0.862</b> | <b>-0.772</b> | <b>-0.892</b> | <b>-0.801</b> | <b>-0.870</b> | <b>-0.839</b> | 0.728         | -0.411        | <b>0.973</b>  | <b>-0.977</b> | <b>0.951</b>  | -0.538       | -0.728        | <b>-0.840</b> | <b>-0.946</b> | <b>-0.967</b> | 1             | <b>-0.899</b> | <b>-0.932</b> | <b>-0.777</b>  | <b>-0.836</b> |
| Rough                 | <b>0.884</b>      | 0.026                 | <b>-0.791</b> | -0.590        | <b>-0.838</b> | 0.739         | <b>0.794</b>  | 0.746         | 0.586         | <b>0.771</b>  | 0.666         | -0.595        | 0.417         | <b>-0.827</b> | <b>0.911</b>  | <b>-0.861</b> | 0.246        | 0.520         | -0.125        | <b>0.769</b>  | <b>0.927</b>  | <b>-0.899</b> | 1             | 0.728         | 0.612          | <b>0.810</b>  |
| Burning               | <b>0.866</b>      | 0.585                 | <b>-0.844</b> | -0.541        | <b>-0.861</b> | <b>0.810</b>  | 0.696         | <b>0.870</b>  | <b>0.918</b>  | 0.738         | <b>0.798</b>  | -0.671        | 0.265         | <b>-0.897</b> | <b>0.891</b>  | <b>-0.906</b> | <b>0.756</b> | 0.715         | -0.406        | <b>0.962</b>  | <b>0.897</b>  | <b>-0.932</b> | 0.728         | 1             | <b>0.852</b>   | 0.695         |
| Heat sensation        | <b>0.826</b>      | 0.492                 | <b>-0.900</b> | -0.699        | <b>-0.825</b> | 0.696         | 0.629         | <b>0.804</b>  | 0.741         | <b>0.780</b>  | <b>0.832</b>  | -0.729        | 0.467         | <b>-0.806</b> | 0.721         | -0.675        | <b>0.785</b> | 0.665         | <b>-0.768</b> | <b>0.817</b>  | <b>0.827</b>  | <b>-0.777</b> | 0.612         | <b>0.852</b>  | 1              | 0.561         |
| Tingling              | <b>0.877</b>      | 0.118                 | <b>-0.823</b> | <b>-0.814</b> | <b>-0.923</b> | <b>0.955</b>  | <b>0.927</b>  | <b>0.921</b>  | 0.721         | 0.732         | <b>0.832</b>  | <b>-0.838</b> | 0.704         | <b>-0.838</b> | <b>0.892</b>  | <b>-0.890</b> | 0.396        | 0.367         | -0.279        | <b>0.814</b>  | <b>0.798</b>  | <b>-0.836</b> | <b>0.810</b>  | 0.695         | 0.561          | 1             |

Values in bold are different from 0 with a significance level  $\alpha=0.05$ .

**Table S5.** Main comments identified about turmeric and black pepper flavoured ice cream samples from the open-ended question.

| Ice Cream Sample | Responses of Participants                                               |                                                    |                                                                                           |
|------------------|-------------------------------------------------------------------------|----------------------------------------------------|-------------------------------------------------------------------------------------------|
|                  | General                                                                 | Mouth sensation                                    | Taste/Flavour                                                                             |
| C                | Pleasant                                                                | Pleasant cooling/refreshing feeling in the mouth   | Milky, Sweet                                                                              |
| T0               | Pleasant,<br>The Best!<br><br>I don't like it;<br>Unpleasant experience | Pleasant cooling/refreshing sensation in the mouth | Turmeric flavour, Woody, Ginger, Mint                                                     |
| T1               |                                                                         | Slight tingling sensation                          | Too intense flavour, (More) intense turmeric flavour, Slightly hot/spicy, Woody, Mustard  |
| T2               |                                                                         | Pleasant refreshing sensation in the mouth         | Slightly spicy/hot, Herbaceous aroma, Mustard,                                            |
| T0p              |                                                                         | Pleasant cooling/refreshing sensation in the mouth | Pleasant taste, Turmeric flavour prevails, Slightly peppery, Slightly spicy/hot, Mustard  |
| T1p              | Undesirable                                                             | Pleasant feeling in the mouth                      | (More) Intense turmeric flavour, Slightly spicy, Mustard, Aftertaste                      |
| T2p              | Undesirable;<br>Absolutely not!                                         | Pleasant/ (Very) unpleasant mouthfeel              | Too intense flavour (of turmeric), Slightly peppery, Slightly bitter, Mustard, Aftertaste |