

**Table S1.** Significance of estimated regression coefficients (ANOVA values) for the relationship of sensory & physicochemical parameters (Y) and reduced sugar Sponge cake samples prepared with increasing levels of fat replacement (X). Significance of regression coefficients\*=P≤0.05, \*\*= P≤0.01, \*\*\*= P≤0.001. (–) indicates whether the relationship is negatively correlated.

| Hedonics |        |         |         | Attribute intensity |                   |                   |        |         |         |         |       |                |                    | Physical |             |             |          | Proximate composition |        |          |       |
|----------|--------|---------|---------|---------------------|-------------------|-------------------|--------|---------|---------|---------|-------|----------------|--------------------|----------|-------------|-------------|----------|-----------------------|--------|----------|-------|
| Sample   |        |         |         | Touch               | Appearance        |                   | Aroma  |         |         | Texture |       | Flavour        |                    | Colour   |             |             |          | (%)                   |        |          |       |
|          | aroma  | flavour | OA      | Springi<br>-ness    | Crust<br>darkness | Crumb<br>darkness | Sweet  | Buttery | Caramel | Moist   | Hard  | Sweet<br>taste | Buttery<br>flavour | Crumb L* | Crust<br>L* | Crust<br>a* | Crust b* | Protein               | Fat    | Moisture | Fibre |
| SC30/0   | 0.82   | 0.81    | 0.82    | 0.88                | 0.71              | 0.65              | 0.78   | 0.94    | 0.61    | 0.64    | 0.50  | 0.88           | 0.55               | 0.81     | -0.95       | 0.99        | 0.92     | -0.98                 | 0.82   | 0.91     | 0.99  |
| SC30/25  | 0.84   | 0.96    | 0.93    | 0.89                | 0.75              | 0.86              | 0.98   | 0.95    | 0.58    | 0.56    | 0.81  | 1.00           | 0.81               | 0.68     | 0.92        | 0.99        | 0.96     | 0.99                  | 0.79   | 0.88     | 0.79  |
| SC30/50  | 0.48   | 0.82    | 0.91    | 0.84                | 0.85              | 0.72              | 0.90   | 0.88    | 0.86    | 0.76    | 0.89  | 0.99           | 0.94               | 0.90     | 0.96        | 0.99        | 0.95     | 0.98                  | 0.89   | 0.97     | 0.81  |
| SC30/75  | -0.04* | -0.05*  | -0.01** | -0.05*              | -0.05*            | -0.03*            | -0.04* | -0.05*  | -0.04*  | -0.03*  | 0.05* | -0.01**        | -0.01**            | 0.80     | 0.05*       | 1.00        | 0.04*    | 0.02*                 | -0.03* | 0.05*    | 0.04* |