

**Table S1.** A summary of the physicochemical properties of fresh sweet potato varieties

| Composition                        | Orange-fleshed | White fleshed | Cream fleshed | Yellow-fleshed | Purple-fleshed | References                                  |
|------------------------------------|----------------|---------------|---------------|----------------|----------------|---|
| <b>Dry matter content (%)</b>      | 14-32          | NR            | NR            | NR             | NR             | Gurmu et al. (2024) <sup>g</sup>            |
|                                    | 18.9-27.1      | NR            | 17.4-25.      | NR             | NR             | Laurie et al. (2015) <sup>a, b</sup>        |
|                                    | 17.5-33.1      | 18.1-35       | NR            | 25-35          | 25.1           | Wu et al. (2008) <sup>c</sup>               |
|                                    | 31.4-36.5      | 39.9-41.6     | 35.9-39.3     | 32.3           | NR             | Namutebi et al. (2004) <sup>d</sup>         |
| <b>Moisture content (%<br/>db)</b> | 70.95          | NR            | NR            | NR             | NR             | Alam (2021) <sup>f</sup>                    |
|                                    | 72.47-82.40    | NR            | 71.87-74.77   | 74.30          | NR             | Laurie et al. (2022) <sup>a</sup>           |
|                                    | 62.78-64.03    | 70.51-72.45   | NR            | 68.58 -72.73   | NR             | Dako et al. (2016) <sup>g</sup>             |
|                                    | 69.42          | NR            | NR            | NR             | 73             | Rodrigues et al. (2016) <sup>e</sup>        |
|                                    | 65.1-70.4      | NR            | NR            | NR             | NR             | Nicanuru et al. (2015) <sup>h</sup>         |
|                                    | NR             | 62.58         | NR            | 62.78-64.03    | NR             | Rose and Vasanthakaalam (2011) <sup>k</sup> |
| <b>Starch (g.g<sup>-1</sup>)</b>   | 65.41          | NR            | NR            | NR             | 103.70         | Rodrigues et al. (2016) <sup>e</sup>        |
|                                    | 95.7-167.7     | NR            | 164.3         | 156.7-163.3    | NR             | Laurie et al. (2022) <sup>a</sup>           |
|                                    | NR             | 67.5-61.5%    | NR            | 45.8-53.1      | 53-55.9        | Guo et al. (2019) <sup>c</sup>              |
|                                    | 98.5%          | 99%           | NR            | 97%            | 99%            | Soison et al. (2015) <sup>f</sup>           |

|  |           |            |            |           |             |                                      |
|--|-----------|------------|------------|-----------|-------------|--------------------------------------|
| <b>Protein (g.100g<sup>-1</sup>/%, db)</b> | NR        | NR         | NR         | NR        | 19.12-28.81 | Ngcobo et al. (2024) <sup>a, b</sup> |
|  | 1.91-5.83 | NR         | NR         | NR        | NR          | Alam (2021) <sup>g</sup>             |
|  | 0.8-1.20% | NR         | 1.07-1.53% | 1.10%     | NR          | Laurie et al. (2022) <sup>a</sup>    |
|  | 2.48-2.84 | 3.46-4.60  | NR         | 4.41-6.50 | NR          | Dako et al. (2016) <sup>g</sup>      |
|  | 0.1       | 0.1        | NR         | 0.4       | 0.1         | Soison et al. (2015) <sup>f</sup>    |
|  | 3.69      | NR         | NR         | NR        | 5.70        | Rodrigues et al. (2016) <sup>e</sup> |
|  | 4.21-4.4% | 2.72-4.88% | NR         | NR        | 5.52-5.90%  | (Kim et al., 2011) <sup>g</sup>      |
|  | 1.44-2.50 | 2.45       | 1.47       | NR        | NR          | Lyimo et al. (2010) <sup>h</sup>     |
| <b>Fat (g.100g<sup>-1</sup>)</b>           | NR        | NR         | NR         | NR        | 0.47-0.83   | Ngcobo et al. (2024) <sup>a, b</sup> |
|  | 0.17-0.30 | NR         | NR         | NR        | NR          | Alam (2021) <sup>f</sup>             |
|  | 0.10      | NR         | ND         | 0.17      | NR          | Laurie et al. (2022) <sup>a</sup>    |
|  | 1.00-1.12 | 0.53-0.72  | NR         | 0.49-0.66 | NR          | Dako et al. (2016) <sup>g</sup>      |
|  | 0.42      | NR         | NR         | NR        | 0.42        | Rodrigues et al. (2016) <sup>e</sup> |
|  | 0.03-0.95 | 0.14       | 0.16       | NR        | NR          | Lyimo et al. (2010) <sup>h</sup>     |
|  | NR        | NR         | NR         | NR        | 2.51-2.86   | Ngcobo et al. (2024) <sup>a, b</sup> |
| <b>Dietary Fiber (g.100g<sup>-1</sup>)</b> | 3.83-4.52 | 2.94-5.24  | NR         | 3.59-6.65 | NR          | Dako et al. (2016) <sup>g</sup>      |
|  | 2.37-4.07 | NR         | 2.87-3.37  | 3.57      | NR          | Laurie et al. (2022) <sup>a</sup>    |
|  | 3.68      | NR         | NR         | NR        | 2.57        | Rodrigues et al. (2016) <sup>e</sup> |

|   |  |         |   |           |       |   |
|---|--|---------|---|-----------|-------|---|
| <b>Beta-carotene<br/>(mg.100g<sup>-1</sup>)</b>     | 4.3.06-21.40                             | NR      | NR                                      | NR        | NR    | Gurmu et al. (2024) <sup>g</sup>            |
|   | 38.7-82.93                               | NR      | 0                                       | 25.61     | NR    | Laurie et al. (2022) <sup>a</sup>           |
|   | 121.6                                    | NR      | NR                                      | 15.7      | 12    | Kuan et al. (2016) <sup>i,j</sup>           |
|   | 300-530                                  | 0-125   | NR                                      | 14.7-28.5 | 2.8-3 | Kim et al. (2015) <sup>h</sup>              |
|   | 24.2-73.9                                | NR      | NR                                      | NR        | NR    | Nicanuru et al. (2015) <sup>h</sup>         |
|   | 5091-16456<br>µg.100g <sup>-1</sup> , fw | NR      | 14-134<br>µg.100g <sup>-1</sup> ,<br>fw | NR        | NR    | Laurie et al. (2012) <sup>a,b</sup>         |
|   | 4.66-4.99                                | ND      | NR                                      | NR        | NR    | Rose and Vasanthakaalam (2011) <sup>k</sup> |
|   | 34.6-83.3                                | NR      | NR                                      | 4.3-9.7   | NR    | Shih et al. (2009) <sup>l</sup>             |
|   | 24.1-231.1                               | 5.2-7.8 | NR                                      | 123-128.9 | 0.60  | Wu et al. (2008) <sup>c</sup>               |
| <b>Anthocyanin content<br/>(µg. g<sup>-1</sup>)</b> | NR                                       | ND      | NR                                      | ND        | 57.9  | Kuan et al. (2016) <sup>i</sup>             |
|   | 2.98                                     | NR      | NR                                      | NR        | 7.14  | Kim et al. (2015) <sup>h</sup>              |
|   | 4-8.5                                    | NR      | NR                                      | 2-3.6     | NR    | Shih et al. (2009) <sup>l</sup>             |

Abbreviations: NR = not reported, ND = not detected. dm = dry weight basis, fw = fresh weight basis, superscript represents the country of origin of SP varieties whose data are presented in the table, a = South Africa, b = United States of America, c = China, d = Uganda, e = Brazil, f = Bangladesh, g = Ethiopia, h = Tanzania, i = Japan, j = Indonesia, k = Rwanda, l = Taiwan

## Supplementary Table References

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