**Quality and antioxidant potential of goat’s milk paneer prepared from different citrus juices and its whey**

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**Supplementary File**

**Materials and Methods**

***Microbiological analysis of goat’s milk paneer***

Paneer was microbiologically analyzed for Total Plat Counts (TPC, log CFU/g of paneer) and Yeast, and Mold (Y & M, log CFU/g of paneer) during storage period by following method as described by Broadbent *et al*. (2013). Ten (10) g of crushed paneer sample was homogenized in 90 mL of sterilized sodium citrate (2%, pH 7.5) water. One mL of different dilutions of the above suspension (up to10-4) was then plated on plate count agar media (acumedia, LAB, Neogen® Culture Media, USA). The TPC were enumerated after incubating the petri-plates for 2 days at 37°C. Similarly, the counts of Y & M were also done after 48 h at 30°C by employing potato dextrose agar (Biolife, Milano, Italia).

***Preparation of water soluble extracts (WSEs) of goat’s milk paneer***

The WSEs of paneer were prepared according to the procedure described by Gupta *et al*. (2013) with a few modifications. Briefly, 20 g of crushed paneer was dissolved into 60 mL of distilled water and stirred for three hours at room temperature. The samples were centrifuged at 10,000 rpm (10 min, 4°C) after adjusting pH at 4.6. The supernatant was filtered via Whatman 42 filter paper and designated as WSE. These were instantly frozen at −20°C until analyzed.

***Determination of Total Phenolic (TP) contents***

The TP of paneer or juices were determined using the method described by Reis *et al*. (2012). Folin–Ciocalteu reagent (5%, 1500 µl) was added into WSE (500 µL) of paneer or dilute juices. After being vortexed, 1500 µl of sodium carbonate (10%) solution was added into the mixture. The absorbance was measured at 760 nm using a UV/VIS Spectrophotometer (T80, PG Instruments) after incubating the mixture for 60 min at room temperature. The TP contents were calculated as µg Gallic acid equivalent (GAE)/g of paneer or µg GAE/mL of juice. All determinations were carried out in triplicate.

***Determination of Total Flavonoid (TF) contents***

The TF were measured via the spectrophotometric method according to Jia *et al*. (1999). Sodium nitrite (5%, 75 µL) solution was added into WSE (500 µL) of paneer or dilute juices. Aluminum chloride (10%, 150 µL) solution was also added. The absorbance was evaluated at 510 nm, employing UV/VIS Spectrophotometer (T80, PG Instruments) after inserting 500 µL of 1 M NaOH into the above mixture. The results were articulated as µg quercetin equivalent (QE)/g of paneer or µg QE/mL of juice. All determinations were carried out in triplicate.

***Determination of Ferric Reducing Antioxidant Power (FRAP) assay***

The FRAP of WSE of paneer or juices was computed via method as described by Reis *et al*. (2012) with slight modifications. The sample (500 µL WSE of paneer or dilute juices) was mixed with 500 µL potassium phosphate buffer (0.2 M, pH 6.6) and potassium ferricyanide (K3Fe(CN6)). After incubating the mixture for 20 min at 50°C, 500 µL of trichloroacetic acid (%) was added. The mixture was centrifuged (Hermle Labortechnik GmbH Siemensstr-25 D-78564 Wehingen, Germany) at 5000 rpmfor 10 min at 4°C in order to obtain clear supernatant. Then, 200 µL of ferric chloride (0.2%) was added to the supernatant and the absorbance was measured using UV/VIS Spectrophotometer (T80, PG Instruments, UK) at 700 nm. The results were calculated as µg ascorbic acid equivalent (AAE)/g or µg AAE/mL. All determinations were carried out in triplicate.

***ABTS radical scavenging activity assay***

The capability of samples to scavenge 2,2′-azino-bis(3-ethylbenzothiazoline-6-sulfonic acid) diammonium salt (ABTS) was determined by following the method as described by Zeghad *et al*. (2019). The 7 mM ABTS solution (in distilled water) was mixed with 2.5 mM potassium persulfate (in distilled water) (1:1) and allowed to stand for 20 hrs in the dark. The mixture was diluted with ethanol to adjust the absorbance (using UV/VIS Spectrophotometer, T80, PG Instruments, UK) at 1.00 ± 0.05 at 734 nm. For each sample (WSE of paneer or dilute juices), 100 µL was added into 3 ml of ABTS solution at room temperature. The absorbance of the mixture was taken after 10 min. The ABTS radical scavenging activity was calculated as mg ascorbic acid equivalent (AAE)/100 g or mg AAE/100 mL. All determinations were carried out in triplicates.

***Determination of DPPH radical scavenging activity assay***

The potential for WSE of paneer or juices to scavenge 2, 2-diphenyl-1-picrylhydrazyl radical (DPPH) was measured according to the method of Yi *et al*. (2008) with some modifications. The DPPH (60 μM in absolute ethanol, 2 mL) solution was added into 1 mL WSE of paneer or dilute juices. The mixture was incubated for 30 min in the dark at room temperature. The absorbance was measured at 517 nm using UV/VIS Spectrophotometer (T80, PG Instruments, UK). The DPPH radical scavenging activity was calculated as mg ascorbic acid equivalent (AAE)/100 g or mg AAE/100 mL. All determinations were carried out in triplicate.

***Determination of Total Antioxidant Capacity (TAC) assay***

The TAC of samples was determined by following method as described by Prieto *et al*. (1999). Three (3) mL of reagent (0.6 M sulfuric acid, 28 mM of potassium phosphate, and 4 mM ammonium molybdate) solution was added into 1 mL WSE of paneer or dilute juices. After incubating the mixture for 95 min at 90°C, the absorbance was measured at 695 nm using a UV/VIS Spectrophotometer (T80, PG Instruments, UK). The TAC was calculated as mg ascorbic acid equivalent (AAE)/100 g or mg AAE/100 mL. All determinations were carried out in triplicate.

**Supplementary Table S1:**

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| Treatments | Milk (L) | Citric acid solution/Fruit Juice | Quantity (mL) |
| **T0** | 5 L | Citric acid solution (2%) | 170 mL |
| **T1** | 5 L | Lemon juice | 65 mL |
| **T2** | 5 L | Grape fruit juice | 350 mL |
| **T3** | 5 L | Musambi juice | 700 mL |
| **T4** | 5 L | Feutrell’ early juice | 640 mL |
| **T5** | 5 L | Kinnow juice | 620 mL |

**Supplementary Figure S1:** pH (means ± SD) (bars) and total soluble solids (°Brix) (means ± SD) (line) of coagulants used in the preparation of goat’s milk paneer.

**Supplementary Figure S2:** Total phenolics (TP, means ± SD, µg GAE/mL)) (black bars), total flavonoids (TF, means ± SD, µg QE/mL) (grey bars), ferric reducing antioxidant power (FRAP, means ± SD, µg AAE/mL) (white bars), ABTS radical scavenging activity (, means ± SD, mg AAE/100 mL), DPPH radical scavenging activity (, means ± SD, mg AAE/100 mL), total antioxidant capacity (TAC) (, means ± SD, mg AAE/100 mL) of juices from different citrus varieties used in the present study.