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Supplementary File S1

Supplementary File S1 contains the full research instrument used for data collection.

Standard Operating Procedure for Green Spinach Extract Capsule Preparation and Administration

Step	Procedure	Responsible personnel	Documentation
1. Raw material selection	Select fresh young green spinach leaves (Amaranthus viridis) obtained from organic spinach farmers. Remove damaged or unsuitable leaves.	Laboratory personnel and research team	Raw material log
2. Washing and drying	Wash 5 kg of fresh green spinach leaves thoroughly and dry in an oven at 50°C for 1 hour to obtain dried simplicia.	Laboratory personnel	Processing log
3. Powder preparation	Blend dried simplicia into powder.	Laboratory personnel	Processing log
4. Extraction	Macerate 1,000 g of spinach simplicia powder in 10 L of 70% ethanol for 3 × 24 hours at room temperature with repeated stirring. Replace solvent during maceration as required.	Laboratory personnel	Extraction log
5. Filtration and concentration	Filter the macerate using filter paper and concentrate using a water bath. Further thicken the extract in an oven at 70°C until a thick extract is obtained.	Laboratory personnel	Extraction record
6. Capsule preparation	Prepare 1,000 spinach extract capsules by manually filling capsule shells with the prepared spinach extract according to the laboratory procedure. Close and clean the capsules before packaging.	Laboratory personnel	Capsule production log
7. Packaging and storage	Place capsules in clean, closed containers and label them according to	Research team	Packaging and storage checklist

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	participant code and administration schedule. Store capsules in a clean, dry, closed place protected from direct sunlight.		
8. Participant assessment	Greet the participant, assess complaints and history of pregnancy complications, and explain the purpose and procedure of supplementation.	Research team and primary health care providers	Participant checklist
9. Participant education	Explain physiological changes during pregnancy, increased iron requirements, the function of iron, factors inhibiting iron absorption, and correct capsule consumption.	Research team	Counseling checklist
10. Administration schedule	Instruct participants to consume two capsules per dose, three times daily after meals, at 8-hour intervals, for 14 days. Participants who cannot swallow capsules may open the capsule and mix the contents with approximately two spoonfuls of water.	Participant, monitored by research team	Daily consumption record
11. Fidelity monitoring	Monitor daily capsule consumption using a compliance checklist and WhatsApp confirmation. Calculate adherence as the number of capsules consumed divided by the total prescribed capsules multiplied by 100.	Research team	Compliance checklist
12. Safety monitoring	Record participant complaints, missed doses, gastrointestinal symptoms, allergic reactions, or other adverse events. Refer participants to primary health care providers if needed.	Research team and primary health care providers	Safety monitoring sheet

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13. Post-intervention assessment	Measure posttest hemoglobin concentration after completion of the 14-day intervention period.	Trained research personnel and primary health care providers	Hemoglobin record