Product Name	Keora Jam
Brief Description	A nutritious, natural jam produced from the ripe fruit of *Sonneratia apetala* (Keora), a mangrove species native to the Sundarbans and coastal regions of Bangladesh. The process utilizes modern processing technology to create a healthy, low-sugar jam rich in vitamin C, dietary fiber, and essential minerals, with natural preservative qualities and a shelf life of up to one year without artificial preservatives. 
Problem Being Addressed	Conventional jams contain high levels of sugar, additives, and preservatives with poor nutritional value. Traditional production methods degrade essential nutrients. Keora fruit offers a natural, healthier alternative rich in antioxidants and dietary fiber, addressing food security in coastal Bangladesh while providing a nutritious alternative to traditional processed foods.
Primary Applications	Commercial jam production, health food market, coastal community food products, export-oriented processed fruit products, institutional food supply, and value-added mangrove fruit utilization.
Target Users & Buyers	Food processing companies, health-conscious consumers, coastal communities in Bangladesh, export markets (India, Africa, Southeast Asia), government food security programs, NGOs working on livelihood development, and retail supermarkets and grocery chains.
Development Status	The process is fully developed and standardized, with laboratory-scale production validated, an industrial-scale production method established using a 500 kg automatic jam making machine, shelf life studies completed (up to 1 year), and sensory evaluation conducted with a 10-judge panel. It is ready for commercial technology transfer and licensing, developed by a 7-member inventor team from BCSIR, Dhaka.
Testing & Quality Validation	**Physicochemical Properties:** pH 3.24–3.28; Acidity 0.69–0.78% (BSTI std ≤0.90%); TSS 69.2–69.25% (above 60% standard); Moisture 20.6–20.75%; Total Sugar 52.2–54.4%; Reducing Sugar 41.9–42.2%; Non-Reducing Sugar 10.3–10.5%; Vitamin C 8302.3 mg/kg. **Mineral Profile:** Na (9,873.68 µg/kg), K (3,895.58 µg/kg), Ca (45.39 µg/kg), Mg (18.37 µg/kg), Fe (66.96 µg/kg), Mn (22.19 µg/kg), Cu (4.61 µg/kg), Zn (10.01 µg/kg), P (451.9 mg/kg). **Proximate Analysis**: Protein 3.3%, Fat 5.36%, Fiber 0.5%, Carbohydrate 67.77%, Energy 333 kcal/100g, Ash 2.38%. **Microbiological Safety:** *Total Heterotrophic Bacteria; Total Coliform; Fecal Coliform; E. coli, Salmonella, Shigella, Vibrio* all are absent; Toxic metals (As, Cd, Pb, Hg, Cr) all within safe limits. **Sensory Evaluation:** Overall Acceptability (7.70–7.75) and all rated Good.
Core Technical Advantages	Made from an underused mangrove fruit, this sustainable product supports coastal livelihoods with superior nutrition. Its natural low pH (3.28) and high organic acids ensure pathogen-free safety no E. coli, Salmonella, Shigella, or Vibrio and 12-month shelf life without additives. Higher vitamin C, fiber, and

	minerals than citrus meet low-sugar demand, while standardized processing guarantees consistent, excellent sensory quality at industrial scale.
Raw Materials & Supply Chain	*Sonneratia apetala* (Keora) fruit; Sugar; Salt (NaCl); Lemon Juice; Sodium Benzoate: (food grade preservative, 98–100% purity, Sigma Aldrich, Germany); and Water.
Key Machinery	Automatic Jam Making Machine: 500 kg capacity (industrial-scale production); Frying Pan/Steam Jacketed Kettle: For cooking at 80–105°C; Blender/Mixer; Sieve: 100–150 mesh for filtration; Analytical Balance; Glass Jars; pH Meter, TSS Refractometer, Viscometer; Autoclave/Sterilization Equipment and Storage Facility.
Indicative Economics	Using abundant Sundarbans Keora fruit plus low-cost inputs, this high-yield process makes 1,500g per batch with just 0.05g sodium benzoate and a 1-year shelf life, cutting storage waste. Scaled on 500kg machinery, it monetizes an underused mangrove fruit, creates coastal income, and targets premium natural/health jam markets with strong ROI.
Market Evidence & Readiness	Standardized formulation protocol developed at BCSIR is ready for commercial technology transfer, industrial scale-up, and license agreements.
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