RADAD INTERNATIONAL

PRODUCT NAME: Fermented and sun-dried cocoa beans

ORIGIN Africa

PACKAGING: 62.5 kg jute bag, complying with international standards

CERTIFICATION Certificate of Origin and phytosanitary certificate available

ANALYTICAL INFORMATION OF RADAD COCOA BEANS

PHYSICAL SPECIFICATIONS

Parameter	Standard Value / Range	Method of Test / Notes
Moisture Content	≤ 7.5%	ISO 2291
Bean Count	70–100 beans / 100 g	Indicates size uniformity
Fermentation Index	≥ 80% well-fermented beans	Based on cut test (≥80% brown beans)
Mouldy Beans	≤ 3%	Cut test, ISO 1114
Slaty Beans	≤ 3%	Indicates incomplete fermentation
Insect-Damaged Beans	≤ 2%	Visual inspection
Foreign Matter	≤ 0.5%	Stones, sticks, shell fragments
Flat Beans	≤ 1%	Thin or undeveloped beans
Broken Beans	≤ 2%	Non-whole beans
Shell Content	≤ 12%	Shell as a share of bean weight

CHEMICAL COMPOSITION

Component	Range / Content	Remarks
Fat Content (Cocoa Butter)	48–56%	Natural fat of the bean
Theobromine	1.0–2.5%	Natural stimulant compound
Caffeine	0.1–0.7%	Minor alkaloid
Protein	10–12%	Nutritional basis
Carbohydrates	10–15%	Includes sugars and fiber
Ash Content	2–4%	Mineral residue
pH (after fermentation)	5.2–5.8	Mild acidity desirable
Polyphenols	8–10%	Antioxidant compounds (affect flavor and color)

ORGANOLEPTIC CHARACTERISTICS

Attribute	Description
Appearance	Oval-shaped brown beans, dry and well fermented
Aroma	Strong cocoa aroma, slightly acidic and fruity
Flavor Profile	Balanced bitterness, mild acidity, full-bodied cocoa taste
Texture	Firm, crisp break (indicates proper drying)

RC No.: 7360411
info@radadinternational.com
www.radadinternational.com
+971 522 501 039
Al Barsha, Dubai
Osun State, Nigeria

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MICROBIOLOGICAL STANDARDS

Parameter	Limit / Unit
Total Plate Count	≤ 10^4 CFU/g
Yeasts and Moulds	≤ 10^2 CFU/g
Salmonella	Absent in 25 g
E. coli	≤ 10 CFU/g
Aflatoxin (B1, B2, G1, G2)	≤ 5 ppb total

STORAGE AND HANDLING

Condition	Specification
Temperature	18–25°C (avoid high humidity)
Relative Humidity	≤ 65%
Packaging	Jute or sisal bags (60–65 kg net), food-grade inner liner optional
Shelf Life	12–18 months under proper storage
Transportation	Clean, dry, odor-free containers (ventilated preferred)
Stacking	On pallets, away from walls/floor (prevent mold & moisture absorption)

APPLICATIONS

- Chocolate manufacturing
- Cocoa powder and butter extraction
- Confectionery and bakery use
- Nutraceuticals and functional foods
- Cosmetic and skincare formulations (cocoa butter base)



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