GREEN NANO TECHNOLOGY
KADAMBA
Patented by US Patent & Trademark Office

GREEN NANO Toothpaste

WORLD'S FIRST NATURAL TOOTHPASTE
RDA < 50
SAFE – NON TOXIC
ENAMEL FRIENDLY

SILVER NANO PARTICLES

16 AYURVEDIC HERBS USED

- NATURAL PRODUCT
- AYURVEDIC PRODUCT
- ECOCERT CERTIFIED
- NO ARTIFICIAL FLAVOURS
- CHEMICAL FREE
- PARABEN FREE
- FLUORIDE FREE
- NO ARTIFICIAL COLORS

GREEN NANOTECHNOLOGY

India based Research and Development organization, developed highly advanced Green Nanotechnology and various disruptive innovations

100%
BIO COMPATIBLE

PATENTED
TECHNOLOGY

NET ZERO CARBON
TECHNOLOGY

01 Green Nano technology utilizes herb-derived phytochemicals with gold, silver & various nano materials.

02 Active ingredients produced through this process replace harmful chemicals in various applications.

03 The chemical-free method ensures effectiveness, biological safety, & environmental friendliness.

04 Biocompatibility of Green Nano's active ingredients enhances overall product efficacy.

05 This approach promotes a sustainable and health conscious use of nanotechnology.

GREEN SILVER NANO PARTICLES

Kadamba Toothpaste

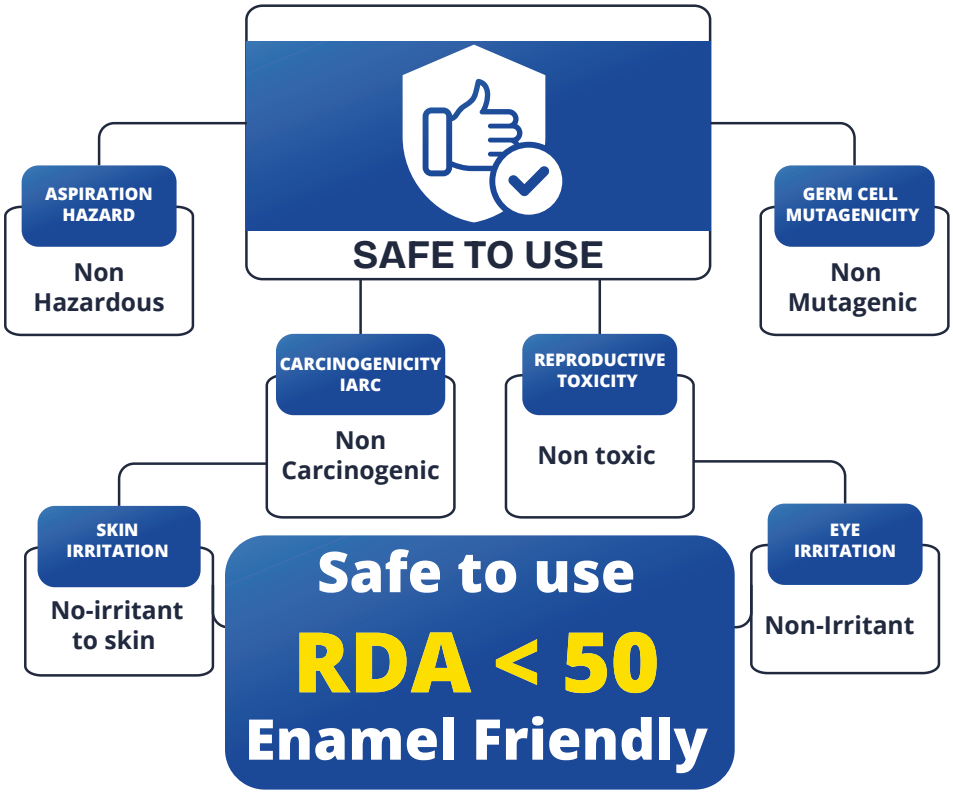
APPROVED BY AYUSH

GREEN SYNTHESIZATION TECHNOLOGY

100% WATER SOLUBLE NANO MOLECULES

Kadamba toothpaste that is not only highly effective but also entirely biocompatible.

Our mission is to harness the potential of naturally available herbal cocktails and other organic ingredients to create a range of silver nanoparticles that are safe for both human health and the environment.



The world's first natural toothpaste with an RDA below 50 (Certified by Indiana University-USA) ensuring minimal abrasivity, enamel safety, and daily protection through green nanotechnology and Ayurvedic science, for its non-toxic and effective formulation

EFFICACY

Highly effective against any

Gram positive and Gram negative Bacteria, Fungicides, Virus and any type of Multi Drug Resistant Pathogens (MDRP)

Especially Dental cavity causing and oral infection causing bacteria like

- Porphyromonas gingivalis
- Streptococcus mutans
- Lactobacillus acidophilus
- Tannerella forsythia
- Actinomyces naeslundii
- Fusobacterium nucleatum

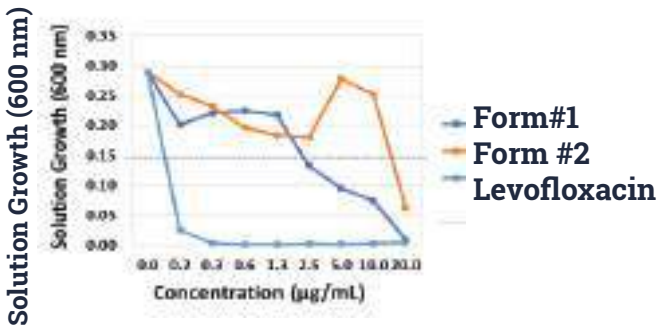
Sample	Test Organism	Initial Count (CFU/ml)	Exposure Time	Final Count (CFU/ml)	% Reduction
B2404741-3	MRSA ATCC 43300	1.61×10^5	30 seconds	2.40×10^2	99.85
			1 minute	1.00×10^2	99.93
			3 minutes	<10	>99.99
			5 minutes	<10	>99.99

Kadamba Toothpaste

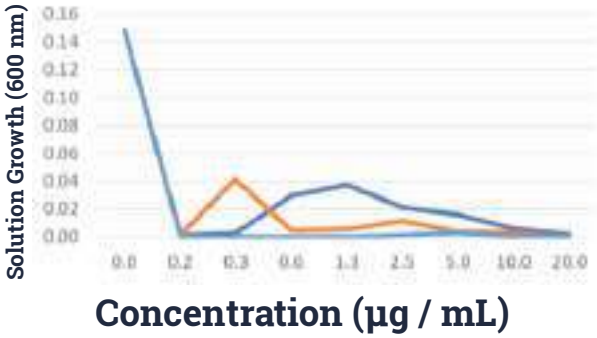
Kadamba toothpaste harnesses the power of green silver nanoparticles and natural herbs to tackle everyday dental issues, defend against gingivitis and MRSA, and support oral health.

Biofilm Penetration capability of Kadamba oral care formulation:

Aggregatibacter actinomycetemcomitans



Porphyromonas gingivalis



Mechanism of anti-bacterial action

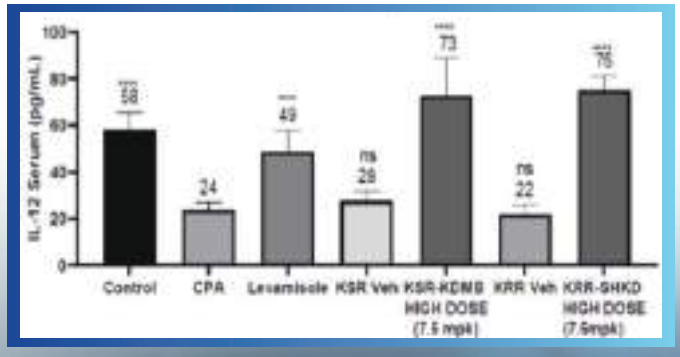
Following the bacterial internalization the functionalized nano-particles will inhibit the bacteria by uncoupling of oxidative phosphorylation which defects the link between ETC and ATP synthesis pathways in bacteria. In addition, the nano particles induce the free radical formation in bacteria lead to death of the cells.

Kadamba Toothpaste Reprograms Immue System

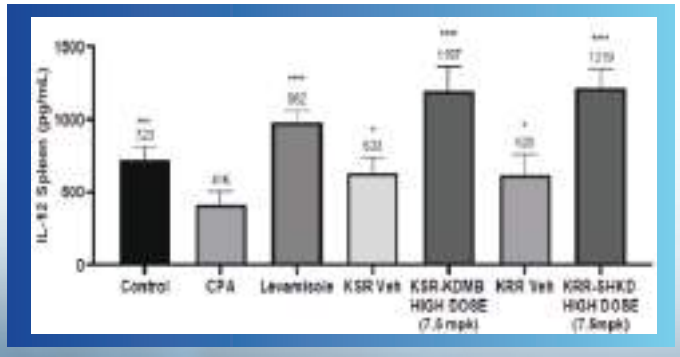
Small regulatory glycoproteins, cytokines, secreted by immune cells like Dendritic cells, Macrophages, T and B cells, amplify the magnitude of immune response

The Kadamba green nano-formulation stimulate the upregulation of pro and preinflammatory cytokines like IL-12 and IFN-γ suggests the involvement in immune-reprogramming which enhances the immunity.

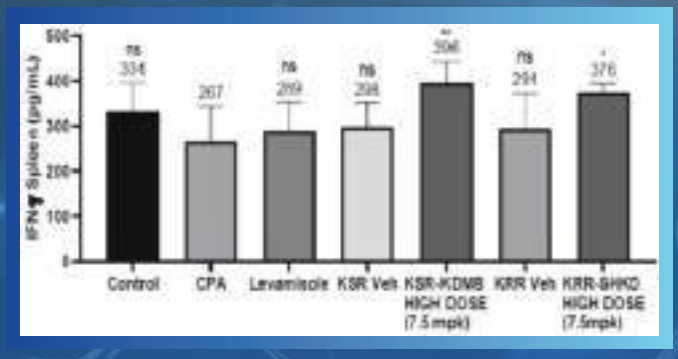
Serum IL-12 (n=6)



Spleen IL-12 (n=6)



Serum IFN-γ (n=6)



Novel formulation for superior dental protection

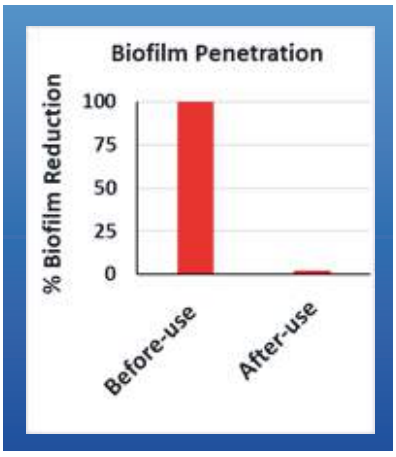
Nearly 3.7 billion people around the globe suffer from some form of oral disease, including dental caries. Dental caries is the most common health condition, approximately 2.5 billion people globally carry untreated tooth decay permanently. Nearly 19% of adults globally have severe gum disease that can lead to tooth loss. Overall oral diseases (caries, gum disease, tooth loss) affect about 45% of the global population at some point in life. Poor oral health can lead to pain, infection, tooth loss, & is linked to other health conditions such as diabetes & cardiovascular disease. Kadamba's novel, natural, chemical free nano-formulation for oral care will have a concerted superior advantage in absorption, oral biofilm penetration & immune-stimulation which remarkably help prevent oral diseases with very minimal relative dentin abrasion (RDA) & greater dentinal tubule occlusion.

Kadamba Toothpaste

Non-Toxic and Safe for Human

NOAL-Rat	10 mg Kg^{-1}	HED	7.5 mg Kg^{-1}
NOAL-KRR- mice	7.5 mg Kg^{-1}	HED	26.32 mg / 65 kg

Real time sample evaluation- oral biofilm inhibition before and after use of Kadamba toothpaste



Kadamba green-nano based advanced oral formulations remarkably reduces 98 % of the biofilm (in humans)

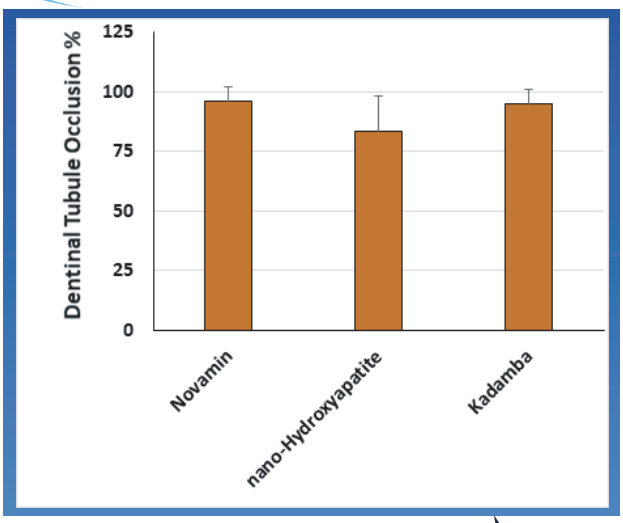
Relative Dentin Abrasion Studies - Real time study on humans

Dentifrice	Sample size (N=8)*	Relative Dentin Abrasion**
Kadamba Toothpaste	7	50.18±1.04

* Missing value was due to rejection by Q-test.
** Mean ± SEM

Kadamba toothpaste has relatively low RDA values (50) which is lower compared to claimed RDA values of many other products in the market.

Dentinal Tubule Occlusion- Patient Sample Study



Novamin VS **Kadamba's Toothpaste**

Parameters	Novamin	Kadamba Toothpaste
Origin	Chemical based with side effects	100% Natural formulation, non toxic, chemical free and zero side effect
Composition	Chemicals substances including fluoride	Phyto encapsulated green- nanoparticles, fluoride free
Allergenicity	Skin irritation, eye discomfort etc.	Non-allergic and no side effects
Relative Dentin Abrasivity (RDA)	~85	~50, significantly lower compared to Novamin
Safety if swallowed	Causes gastric irritation and GI discomfort	Non-toxic, natural composition aids in digestion and promote the GI microflora
Immune modulation	Claimed none	Modulates pro- & pre-inflammatory cytokines & help elevate the immune system
Action	Gives protection against Hypersensitivity and bacteria	Gives protection against hypersensitivity and wide spectrum of pathogens including fungus and viruses
Prescription	Mainly for hypersensitivity and certain age groups	For all age groups and multiple dental conditions like lesions, gum related issues, infections etc.
Additional Benefits	Claimed none	Merriment aids in wound healing, gum related issues and stain removing in addition to hypersensitivity

Novamin is a chemically synthesized bioactive compound, not naturally derived. There is limited publicly available long-term human data on its chronic use in oral care. Kadamba Green Nano Oral Care formulation offers similar action towards sensitivity and oral care. Kadamba's products are 100% natural and plant derived; with well established long term safety on continous use

Mechanism of Action of Kadamba Toothpaste

Bacterial Cell Wall Destruction

1. Breaks down cell structure, causing lysis.

Disruption

2. Inhibits bacterial protein synthesis, DNA replication, & respiration.

Oxidative Stress

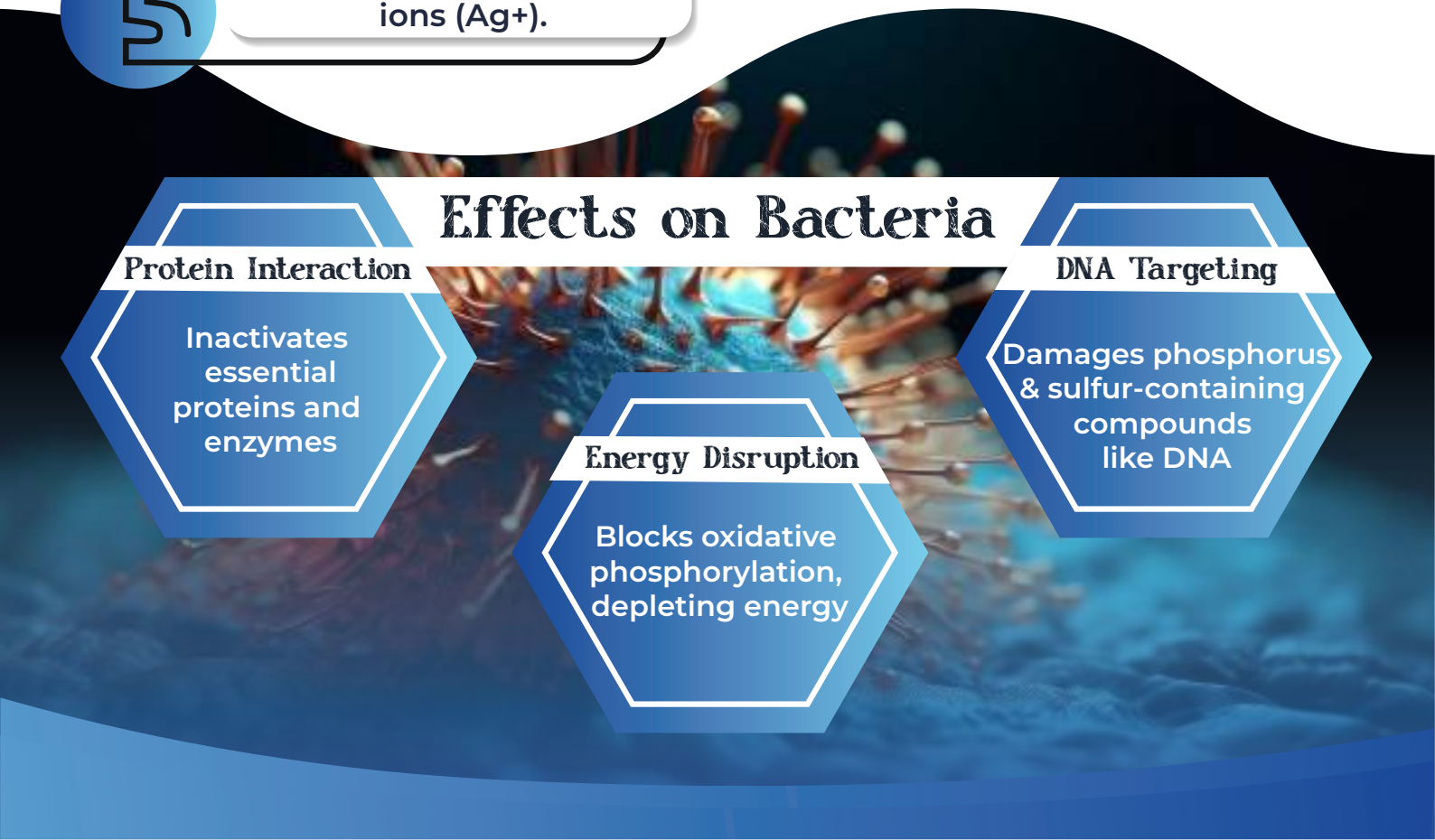
3. Produces reactive oxygen species (ROS), causing cellular damage.

Cell Membrane Damage

4. Disrupts membrane integrity, leading to leakage & cell death.

Penetration

5. AgNPspenetrate bacterial cell walls, releasing silver ions (Ag+).



Effects on Bacteria

Protein Interaction

Inactivates essential proteins and enzymes

Energy Disruption

Blocks oxidative phosphorylation, depleting energy

DNA Targeting

Damages phosphorus & sulfur-containing compounds like DNA

Harmful Chemicals used in Conventional Toothpastes

Chemical	Usage	Side Effect
Sodium Fluoride	Active Ingredient Acts as an active ingredient to promote enamel remineralization and cavity prevention.	Excessive ingestion, especially in children, may lead to dental fluorosis (discoloration or mottling of teeth) and, in extreme cases, skeletal fluorosis over prolonged exposure
→ Hydrated Silica → Calcium Carbonate	Abrasives : Provide mechanical cleaning and polishing to remove plaque and surface stains.	Can contribute to enamel erosion if used aggressively or if the product's abrasivity is too high.
Sodium Lauryl Sulphate (SLS)	Surfactants : Create foam to aid in the even distribution of the toothpaste and help remove debris	SLS is known to cause irritation in some individuals, leading to mouth sores or exacerbation of canker sores in susceptible users
→ Glycerine → Sorbitol	Humectants : Retain moisture and maintain the toothpaste's texture.	Might cause minor gastrointestinal discomfort
Carboxymethylcellulose	Binders : Stabilize the toothpaste formulation and maintain consistency	Could potentially cause minor digestive issues
→ Methylparaben → Propylparaben (Normally known as Parabens)	Preservatives : Prevent microbial growth and extend shelf life.	Parabens have raised concerns regarding endocrine disruption and may trigger allergic reactions or skin irritation in sensitive individuals.
Artificial Flavours	Flavouring Agents and Sweeteners	Might cause digestive disturbances and long-term impact still not known
Synthetic Dyes	Colorants : Improve aesthetic appeal	Creates allergic reactions and linked to hyperactivity in children

Toothpaste's Hidden Chemicals in others products

Unveiling Health Hazards and Ecological Disruption

Currently, toothpaste products are saturated with hazardous chemicals that can irritate oral tissues, provoke allergic reactions, and disrupt hormonal balance in susceptible individuals. Moreover, these compounds often bypass conventional wastewater treatments, accumulating in aquatic ecosystems where they foster microbial resistance and disturb natural ecological processes. This persistent environmental load not only endangers biodiversity but also challenges long-term sustainability, underscoring the urgent need for safer, greener alternatives in personal care formulations

Kadamba's Chemical-Free Toothpaste

Green Nano Revolution in Oral Health
Safe, Sustainable and Healthier

Green nanotechnology-based Kadamba toothpaste provide safe, effective, and eco-friendly alternatives to conventional toothpaste. By eliminating toxic chemicals like fluoride, parabens, SLS, and artificial additives, these formulations prioritize long-term oral health, natural antibacterial protection, and sustainability, making them superior choices for both consumers and the environment

Comparison Between

Kadamba Toothpaste **VS** ***Conventional Chemical-Based Toothpaste***

Feature	Kadamba Toothpaste	Chemical-Based Toothpaste
Ingredients	Plant-derived bioactive (Neem, Clove, Tulsi, Miswak and more) encapsulated silver nanoparticles	Loaded with chemicals like Fluoride, Sodium Lauryl Sulfate (SLS), Parabens, Artificial Flavors & Dyes
Antimicrobial Action	Uses plant based natural antibacterial agents encapsulated with Silver Nanoparticles	Relies on chemical agents like, Chlorhexidine, or Fluoride
Foaming Agent	Natural saponins from herbs	Synthetic surfactants like SLS, which can cause mouth irritation
Whitening Properties	Natural polishing agents with nano-herbal extracts	Chemical-based abrasives that may erode enamel over time
Preservatives	Green silver nano particles are known for its highly effective antimicrobial property for preservation	Parabens and synthetic stabilizers linked to hormone disruption
Safety	Non-toxic, fluoride-free, paraben-free, safe for long-term use	Potential toxicity concerns, especially with fluoride ingestion
Impact on Oral Health	Strengthens enamel naturally, reduces bacterial growth, and maintains gum health without side effects	Overuse of fluoride can lead to fluorosis; SLS can trigger mouth ulcers and irritation
Eco-Friendliness	Biodegradable, eco-friendly packaging, free from pollutants	Contributes to environmental pollution due to chemical runoff

Kadamba's advanced green nano encapsulation technology delivers a chemical-free, antimicrobial oral care solution, ensuring superior efficacy against pathogenic microorganisms while promoting holistic oral health

Scan to visit

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