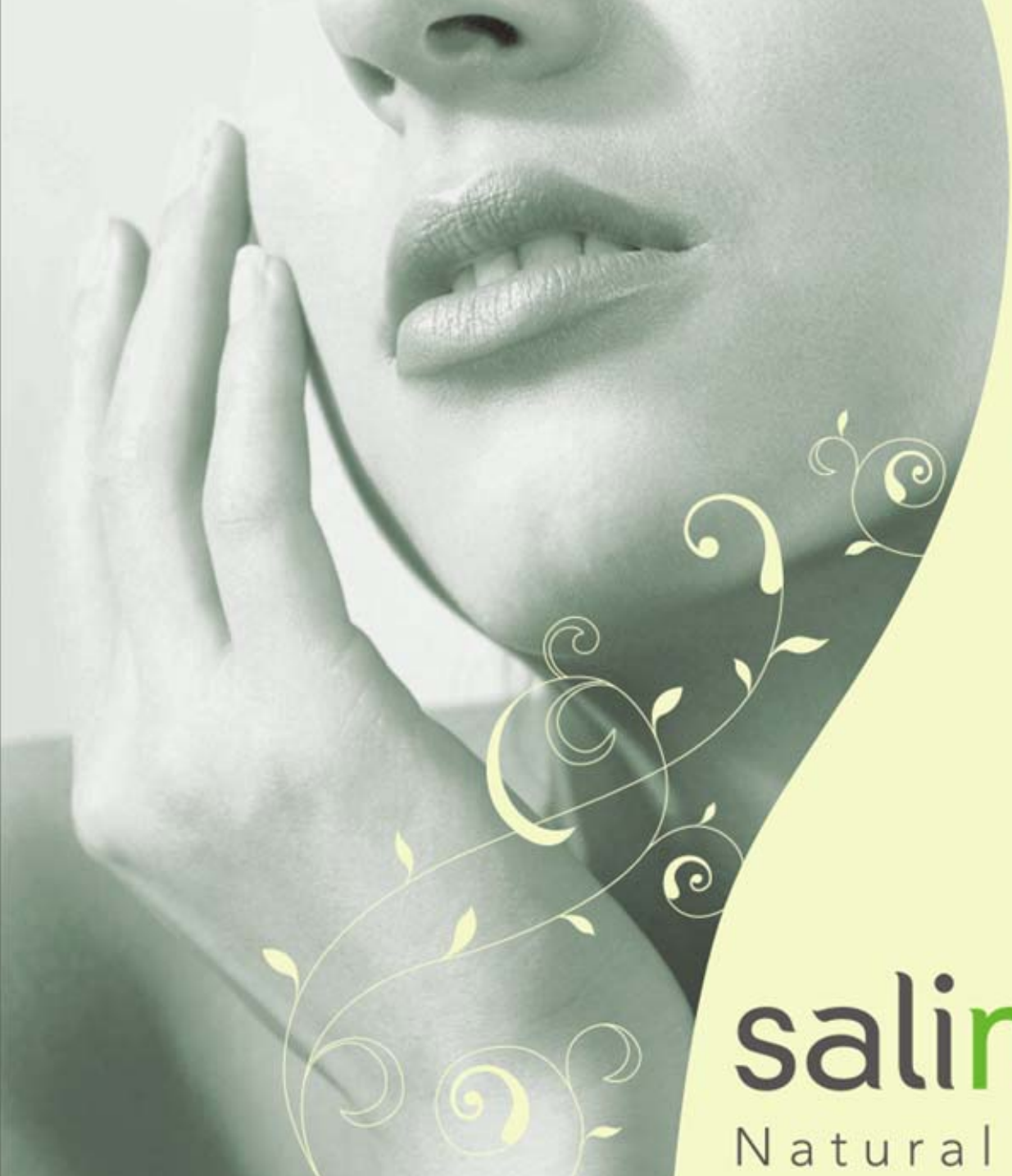

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Natural Preservatives

Introduction

SALICYLATES AND CHEMICALS is one of the largest manufacturers of preservatives for personal care and pharmaceutical applications. Considering the emerging need in the global market for natural preservatives,

SALICYLATES introduces

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natural preservatives for personal and health care products, developed as an alternative to synthetic preservatives.

Product Name **Sali Natural CCL**

Description **Sali Natural CCL** preservative is based on Curry Leaf Oil & Cinnamon Leaf Oil

INCI Name Curry Leaf Oil - Murraya Koenigii
Cinnamon Leaf Oil - Cinnamomum Zeylanicum

- The Curry Leaf & Cinnamon Leaf plants are cultivated on our own plantation spread over 100 acres, and the extraction is carried out in a GMP processing unit that is FDA aprroved.

- **Sali Natural CCL** is a broad spectrum natural liquid preservative system, suitable for personal care and cosmetic applications.
- It has been designed specifically for formulations with a ph $\leq$ 6.0
- It is effective against Gram-positive & Gram-negative bacteria, yeast and mold
- Being non-toxic, it is very safe to use

Features & Benefits

- Long shelf life
- Broad spectrum activity
- Non-toxic
- Wide application
- Excellent bacterial & fungal control
- Ensured safety - no label required

Physical Properties

Property	Specification
Appearance	Liquid
Color	Pale Yellow
Odor	Mild
Specific Gravit	0.93 ± 0.01

Applications

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- **Sali Natural CCL** is water dispersible, pale in color with a mild odor and compatible with a diverse range of products in formulations.
- **Sali Natural CCL** is typically used at 0.75 - 1.2% in rinse-off and leave-on product formulations.
- **Sali Natural CCL** provides excellent protection at ph 6 and can widely be used at ph 3-7.

Rinse-off Products	Skin Care
Shampoos	Creams
Shower Gels	Lotions
Body Washes	Emulsions
Foam Baths	Gels

- **Sali Natural CCL** can be added into any phase of the manufacturing process including the water phase of emulsions; it can tolerate temperatures up to 60°C.
- **Sali Natural CCL** requires intense mixing for uniform dispersal of the active ingredients when low amounts of emulsifiers are in the system.
- **Sali Natural CCL** is fully compatible with a wide range of formulations as well as most types of herbal extracts, proteins and anionic systems.

Broad Spectrum Activity

Sali Natural CCL provides excellent protection against various types of common organisms in a typical Facial Cream, Hand Cream, Shower Gel and Moisturizing Lotion at ph 6. The broad spectrum activity of **Sali Natural CCL** leads to greater efficacy. It provides protection against both types of contaminants.

Preserved by nature

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In the on-going development of new preservatives, SALICYLATES AND CHEMICALS encountered many customers seeking natural preservatives. To satisfy this emerging global demand, SALICYLATES researched various naturally occurring essential oils commonly used in India.

Sali Natural CCL is based on two key essential oils: Cinnamon Leaf Oil (Cinnamomum Zeylanicum) & Curry Leaf Oil (Murraya Koenigii)

Curry Leaf

Botanical Name	Murraya Koenigii
Part Used	Leaf
Extraction Method	Steam Distillation
Origin	India

Description

The small deciduous Curry Leaf plant is native to India. It grows in abundance in jungles & farmlands almost everywhere, excluding the higher reaches of the Himalayas. In the east, it is also found in Burma and Malaysia Curry leaves are extensively used in South Indian & Sri Lankan cuisine. Curry Powder is a British invention conceived to imitate the exotic taste & flavours of Indian cuisine Curry leaves are highly aromatic and possess anti-oxidant, anti-microbial, anti-inflammatory properties. The leaves are small and narrow, often resembling the leaves of the Neem tree, and hence Curry leaves are sometimes referred to as Black Neem

Cinnamon Leaf

Botanical Name	Cinnamomum Zeylanicum
Family	Lauraceae
Part Used	Leaf
Extraction Method	Steam Distillation
Origin	India

Therapeutic Properties

Cinnamon Leaf essential oil strengthens the immune system against diseases caused by fungi, viruses and bacteria. It has stimulating properties that help combat congestion and improve digestion, as well as soothe abdominal spasms and increase circulation. It is anti-spasmodic, and is a valuable treatment for various digestive ailments such as stomach or intestinal cramps, colitis, flatulence, nausea, diarrhea and indigestion. Cinnamon Leaf Oil has long been popular as a mouthwash and breath freshener.

Botanical Description

Though highly recognized today as a culinary spice, the use of Cinnamon for medicinal & religious purposes dates as far back as 2700 BCE. It was used in ancient Egypt / Middle East for embalming & controlling bacterial and viral outbreak. Chinese records during that period took note of its efficiency as a valuable treatment for fever, diarrhea & menstrual ailments. Cinnamon is a member of the Lauraceae family and is natively grown in India and Sri Lanka. Cinnamon is harvested from a particular variety of evergreen tree that can grow as high as 60 feet & thrives best in tropical forests. The bark has a reddish brown hue marked with tiny, yellow flowers & leather-textured leaves that give off a spicy aroma.

Aromatherapeutic Use

Its warm fragrance makes it excellent for calming & soothing mind and emotions.

Constituents

Oil from Cinnamon Leaf is composed mainly of eugenol.

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Face Wash Preserved With 0.75% Sali Natural CCL

Test Organism	Inoculum density / 0.1 ml	Weight of Sample	Expected count per gm of Sample
Staphylococcus aureus	3.2×10^7 cfu/ml	20.09 g	1.6×10^6 cfu/g
Escherichia coli	3.3×10^7 cfu/ml	20.42 g	1.6×10^6 cfu/g
Pseudomonas aeruginosa	4.1×10^7 cfu/ml	20.13 g	2×10^6 cfu/g
Aspergillus niger	3.8×10^6 cfu/ml	20.30 g	1.8×10^5 cfu/g
Candida albicans	1.8×10^7 cfu/ml	20.00 g	9×10^5 cfu/g

Test Organism	Count at Zero hour	Count at 7 th day	Count at 14 th day	Count at 21 st day	Count at 28 th day
Staphylococcus aureus	1.3×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Escherichia coli	1.2×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Pseudomonas aeruginosa	1.8×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Aspergillus niger	1.1×10^5 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Candida albicans	7.2×10^5 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g

Toxicity Information

Mainly due to impending legislation in Europe, which will soon impose various marketing restrictions, **Sali Natural CCL** preservative has not been tested on animals. Therefore, toxicity testing information regarding the blended material will not be generated. However, each of the **Sali Natural CCL** ingredients has been tested extensively over the years. Overall, the ingredients in **Sali Natural CCL** have been carefully chosen due to their global acceptance as well as excellent toxicity profiles.

Shampoo Preserved With 0.75% Sali Natural CCL

Test Organism	Inoculum density / 0.1 ml	Weight of Sample	Expected count per gm of Sample
Staphylococcus aureus	3.2×10^7 cfu/ml	20.07 g	1.5×10^6 cfu/g
Escherichia coli	3.3×10^7 cfu/ml	20.18 g	1.6×10^6 cfu/g
Pseudomonas aeruginosa	4.1×10^7 cfu/ml	20.23 g	2×10^6 cfu/g
Aspergillus niger	3.8×10^6 cfu/ml	20.15 g	1.8×10^5 cfu/g
Candida albicans	1.8×10^7 cfu/ml	20.10 g	8.9×10^5 cfu/g

Test Organism	Count at Zero hour	Count at 7th day	Count at 14th day	Count at 21st day	Count at 28th day
Staphylococcus aureus	1.3×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Escherichia coli	1.4×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Pseudomonas aeruginosa	1.8×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Aspergillus niger	1.4×10^5 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Candida albicans	4.3×10^5 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g

Stability

Sali Natural CCL preservative is very stable and shows no change in composition over long periods of time. It is also freeze / thaw / heat stable without separation or crystal formation through several cycles.

Cream Base Preserved With 0.75% Sali Natural CCL

Test Organism	Inoculum density / 0.1 ml	Weight of Sample	Expected count per gm of Sample
Staphylococcus aureus	3.2×10^7 cfu/ml	20.09 g	1.6×10^6 cfu/g
Escherichia coli	3.3×10^7 cfu/ml	20.13 g	1.6×10^6 cfu/g
Pseudomonas aeruginosa	4.1×10^7 cfu/ml	20.08 g	2×10^6 cfu/g
Aspergillus niger	3.8×10^6 cfu/ml	20.02 g	1.9×10^5 cfu/g
Candida albicans	1.8×10^7 cfu/ml	20.14 g	8.9×10^5 cfu/g

Test Organism	Count at Zero hour	Count at 7th day	Count at 14th day	Count at 21st day	Count at 28th day
Staphylococcus aureus	1.2×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Escherichia coli	1.3×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Pseudomonas aeruginosa	1.5×10^6 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Aspergillus niger	1.2×10^5 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g
Candida albicans	5.1×10^5 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g	< 10 cfu/g

Safety And Regulatory Profile

Sali Natural CCL has an excellent safety and toxicological profile and is safe to use in a wide range of personal care applications

(The information given in this booklet is based on our current knowledge and experience, and may be used at your discretion and risk. We do not assume any liability in connection with your product or its use. You must comply with all applicable laws and regulations, and observe all third party rights.)

A Graphical Representation of the Challenge Tes

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