

(Patent: 10-1532005)

BIORAN NP400 (Natural Preservative)

- Excellent Antimicrobial Activity
- Natural Origin
- No Praben, Phenoxyethanol and No Preservative labeling



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INCI Name

Citrus junos Seed Extract, Illicium verum (Anise) Fruit Extract, Scutellaria Baicalensis Root Extract, Citrus paradisi (Grapefruit) Seed Extract

Applications

- Skin care product
- Toiletries
- Body and hair care product
- Wet tissue
- Natural cosmetics, ect

Suggested use levels

- 1.0 ~ 2.0 %

Introduction

BIORAN NP-400 is natural preservative including extracts from Yuja seed, Illicium verum (Anise) Fruit, Scutellaria Baicalensis Root, Citrus paradisi(Grapefruit) seed. The 4 kinds of antibacterial active plants are in harmonious mixing, complementing and increasing antibacterial activity. Skin irritation is reduced and preservative effect is increased through fermentation. This product has preservative effect in wide spectrum(Bacteria, Yeast, Mold) and can replace Paraben as this product is safe in skin.

Advantages

- Include antibacterial ingredients with natural origin
- Antibacterial effect in wide spectrum (Bacteria, Yeast, etc)
- Excellent storage and skin safety
- Anti-aging with anti-oxidant effect
- Improve antibacterial effect and reduce skin irritation through fermentation
- You can claim that Preservative-free, Paraben, and Phenoxyethanol-Free

Main Ingredients of BIORAN NP400

Citrus junos Seed Extract

- Scientific name: Citrus junos
- INCI Name: Citrus Junos Seed Extract
- Composition of Citrus junos

Ingredient Name	Effect & Efficacy
Vitamin C	Anti-oxidant, fatigue recovery, strengthen immunity
Hesperidin	Antibacterial, strengthen allergy resistance, anti-inflammation
Limonin	Anti-cancer, oral tumor suppression, anti-inflammation, anti-bacterial
Naringin	Anti-oxidant, relieve allergy, relieve inflammation



Main Ingredients of BIORAN NP400

INCI NAME	Main Ingredient	Effect	Pharmacological Action
Citrus junos Seed Extract	limonene linalool Naringin	Sterilization Antibacterial Anti-inflammation Anti-oxidant	<ul style="list-style-type: none"> Excellent anti-bacterial and anti-oxidant effect that suppress toxicity. As a kind of tangerine, it is used to treat acne.
Illicium verum (Anise) Fruit Extract	Shikimic acid Anethole	Antibacterial Anti-inflammation	<ul style="list-style-type: none"> Antibacterial, insecticidal action, antifungal, anti-caries, and anti-oxidant effect Main ingredient of 'Tamiflu' which is remedy for swine flu is originated from Illicium verum (Anise) Fruit.
Scutellaria Baicalensis Root Extract	Baicalein Baicalin Wogonin Wogonoside	Antibacterial Anti-inflammation	<ul style="list-style-type: none"> Antibacterial, insecticidal action, antifungal, anti-oxidant effect As a plant from Scutellaria Baicalensis Root, it is good to relieve inflammation.
Citrus paradisi (Grapefruit) Seed Extract	Flavanones Phenolic acids Eriodictyol Naringin	Sterilization Antibacterial Anti-inflammation Anti-oxidant	<ul style="list-style-type: none"> Excellent anti-bacterial and anti-oxidant effect that suppress toxicity. As a kind of tangerine, it is used to treat acne.



Minimum Inhibitory Concentration Test

I. Test method (inhibitory test for microbial growth)

1) Pre-cultivate test strain in condition as below.

Name of Strain	Culturing Medium	Culturing Temperature (°C)	Culturing Hour (h)
S.aureus	NB	37	24
E.Coli	NB	37	24
P. aeruginosa	NB	37	24
C.Albicans	YMB	30	24

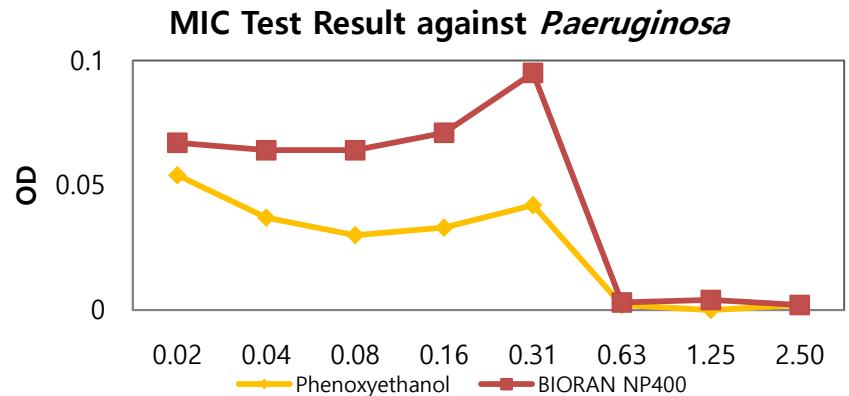
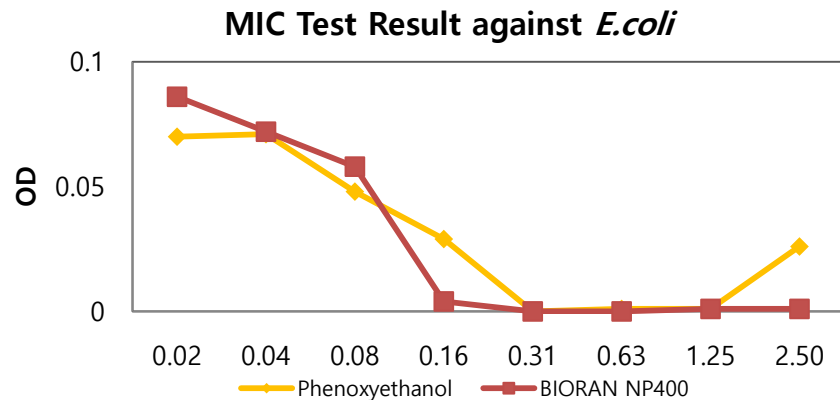
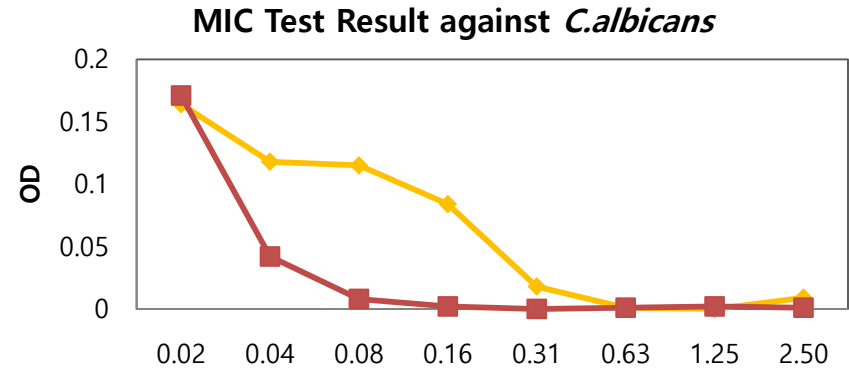
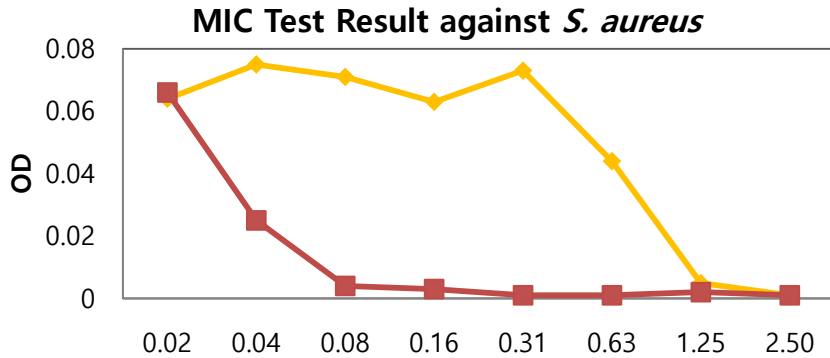
2) After dilute the sample by double concentration, mix the sample with pre-cultivated strain ($1.0 \times 10^6 \sim 7$).

3) After cultivation for 24 hours, measure O.D value at 600 nm.



Minimum Inhibitory Concentration Test

II. Test result of antibacterial effect



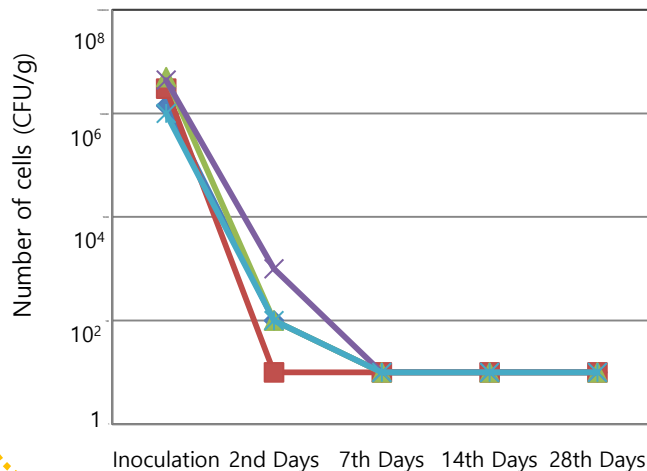
Preservative Efficacy Test (PET Test)

Efficacy test of preservative effect (Modified ISO11930)

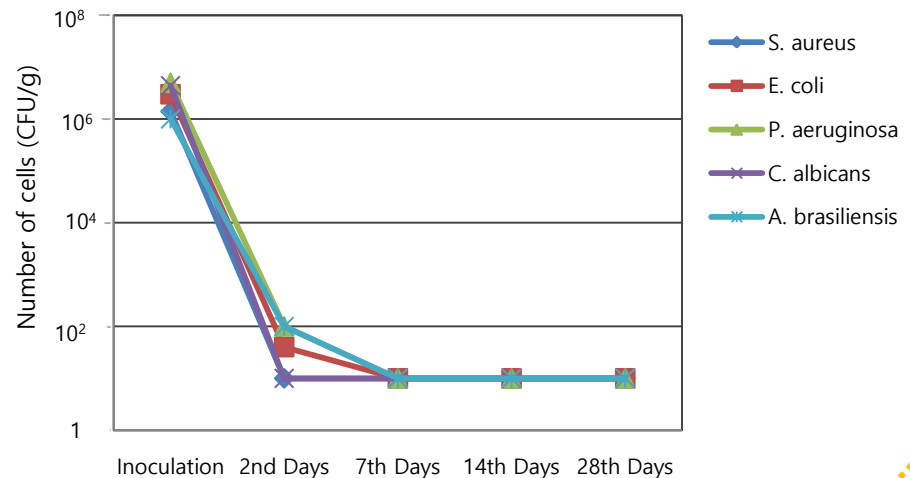
- 1) Test subject : Phenoxyethanol 0.6 %, BIORAN NP400 1.2 %
- 2) Test period: 28 days

Preservative effect test: Phenoxyethanol VS BIORAN NP-400

Lotion containing Phenoxyethanol 0.6 %



Lotion containing BIORAN 400 1.2 %



Certificate of Patent Registration

(Registration number: 10-1532005)

특허증
CERTIFICATE OF PATENT

특허 제 10-1532005 호
Patent Number

출원번호 제 10-2014-0011387 호
Application Number

출원일 2014년 01월 29일
Filing Date

등록일 2015년 06월 22일
Registration Date

발명의 명칭 Title of the Invention
유자씨 추출물을 포함하는 천연 방부제 및 그 제조방법

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위의 발명은 「특허법」에 따라 특허등록원부에 등록되었음을 증명합니다.
This is to certify that, in accordance with the Patent Act, a patent for the invention has been registered at the Korean Intellectual Property Office.

2015년 06월 22일

특허청장
COMMISSIONER,
KOREAN INTELLECTUAL PROPERTY OFFICE

최 동 규



