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Research Article

Go-Real: Real-World Evaluation of Antioxidant Properties of Grapefruit and Rosemary Combination Against Light-Induced Damage in Indian Population

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Abstract

Background: Oral sun protection agents have gained increasing attention as adjuncts to topical sunscreens, particularly in climates with high Ultraviolet (UV) exposure. A combination of Mediterranean rosemary (*Rosmarinus officinalis*) and grapefruit (*Citrus paradisi*) extract has demonstrated antioxidant and anti-inflammatory properties with potential photoprotective benefits. However, real-world clinical data on its use in Indian populations is limited.

Objective: This study aimed to evaluate the real-world use, safety and perceived benefits of a formulation containing Mediterranean rosemary and grapefruit extract (Golite-OSP) as an oral photoprotective agent in Indian dermatological practice.

Methods: A retrospective analysis was conducted across 85 dermatology centres in India, including 850 adult patients who were prescribed the formulation. Data collected included demographic characteristics, dermatological diagnoses, dosage patterns, treatment duration, adverse events and both physician and patient assessments of efficacy and tolerability.

Results: The mean age of participants was 32.2 years; 59.2% were female. The most common indications were acne (51.1%), rosacea (30.8%) and eczema (10.9%). The majority (92.4%) received once-daily dosing, with an average treatment duration of 9.6 weeks. Both physicians and patients reported favourable efficacy and tolerability in over 93% of cases. Adverse events were rare (0.4%), limited to mild gastrointestinal symptoms. Over 75% of patients reported improvements in skin attributes such as lightness, moisturisation, firmness and tone uniformity.

Conclusion: The combination of Mediterranean rosemary and grapefruit extract appears to be a safe and well-tolerated oral photoprotective agent with high levels of patient satisfaction and potential cosmetic benefits. Further controlled studies are warranted to confirm these findings.

Keywords: *Rosmarinus Officinalis*; *Citrus Paradisi*; Ultraviolet; Light-Induced Damage; Indian Population

Introduction

Oral sun protection agents without adverse effects are gaining traction due to their ease of administration and are versatile for different skin types and adaptable to different climatic conditions. Among them, particularly, the combination of Mediterranean rosemary and grapefruit extract is emerging as a promising agent, due to its rich antioxidant and anti-inflammatory properties [1,2]. Rosemary contains bioactive compounds such as carnosic acid, carnosol and rosmarinic acid, while grapefruit is a source

of naringenin, vitamin C and flavonoids. Together the combination offers to help combat UV-induced oxidative stress and inflammation. Specific studies on the combination of *Rosmarinus officinalis* (rosemary) and *Citrus paradisi* (grapefruit) extracts have demonstrated their potential photoprotective effects against Ultraviolet Radiation (UVR)-induced skin alterations [1,2]. These extracts could be particularly beneficial for the Indian population, which predominantly falls under Fitzpatrick skin types IV to VI-skin types more resistant to sunburn but still vulnerable to pigmentation disorders, melasma and UV-induced aging [4,5]. When taken as an oral formulation, these extracts may offer systemic photoprotection by neutralizing free radicals, enhancing the skin's natural defense mechanisms and potentially reducing photoaging and hyperpigmentation [3]. Given India's high UV index and rising environmental stressors, oral supplementation with these extracts could also serve as an effective adjunct to topical sunscreens. However, clinical studies specifically evaluating the efficacy and safety of these extracts in Indian skin types and climatic conditions are currently limited, indicating a need for targeted research in this population. This study aims to gather real-world experience regarding a formulation of Mediterranean rosemary and grapefruit in treating dermatological conditions among the Indian population. Additionally, a qualitative analysis of patient perspectives and ancillary benefits is explored.

Methodology

The real-world experience study was conducted to determine real-world treatment patterns of Mediterranean Rosemary and Grapefruits extract combination as oral sun protection prescribed by the dermatology specialists in Indian settings.

Data related to demographic characteristics, duration of disease, co-morbidities, concomitant medications and dosage pattern will be collected from medical records authenticated by dermatologist during routine care. The study was conducted at 85 sites involving 85 dermatologists across India.

Subjects Meeting All the Following Criteria Were Enrolled

- Retrospectively identified both male and female patients of age 18 years or older
- Patients who have received and used oral sun protection (Mediterranean rosemary and grapefruit extract combination) and/or combination with topical sunscreen
- The treating doctor had to agree to provide information regarding the participant's treatment

Study Endpoints

- Number and duration of patients taking Mediterranean rosemary and grapefruits extract combination as oral sunscreen with or without topical sunscreen
- Use in various dermatological condition/disorder and in other comorbidities and its usage
- Cosmetic pre-procedural and postprocedural cases
- Up-titration or down-titration of dose in any dermatologic condition
- Co-prescription with other medication: OADs, Statins, hypertension, thyroid any other derma systemic drug
- Adverse event reported in study duration related to Mediterranean rosemary and grapefruit extracts combination

Results and Discussion

This real-world study has retrospectively evaluated data from 85 centers across India of 850 patients with different dermatological conditions and on oral sunscreen protection. The mean age was 32 years ranging from 18 to 60 years with a male to female ratio of 0.67. Nearly 50% were working professionals and 28% were housewives.

Skin inflammation and cosmetics usage were the risk factors for 69% and 28% of the patient population, respectively. The mean duration of treatment in the patient population is 9.6 ± 2.9 weeks. The prescription patterns indicated that the formulation has been prescribed majorly for acne (51.1%), Rosacea (30.8%) and Eczema (10.9%). The majority of them (92%) were on once daily dose. Nearly 93-95% of them have expressed good efficacy and tolerability of the drug. There were only three adverse events reported. Two of them reported acidity and one of them reported diarrhoea events; all three were subsequently discontinued from the study.

Variable	Value
Age (years)	Mean ± SD: 32.2 ± 7.5 Range: 18-60
Gender, n (%)	Male:339 (39.9%) Female: 503 (59.2%)
BMI (kg/m²)	Mean ± SD: 24.6 ± 3.3
Blood Pressure (mmHg)	DBP: 81.6 ± 7.5 SBP: 122.7 ± 7.3
Occupation, n (%)	Executive: 52 (6.1%) Farmer: 1 (0.1%) Handling Chemicals/Biologicals: 7 (0.8%) Housewife: 235 (27.6%) Industry Worker: 25 (2.9%) Other: 3 (0.4%) Student: 119 (14.0%) Working Professional: 408 (48.0%)
Treatment Duration (weeks)	Mean ± SD: 9.6 ± 2.9 Range: 2-12
Treatment Frequency, n (%)	OD: 785 (92.4%) BD: 65 (7.6%)

Table 1: Baseline characteristics of study participants (N = 850).

Condition	n (%)
Acne	434 (51.1%)
Autoimmune Disease	21 (2.5%)
Contact Dermatitis	45 (5.3%)
Rosacea	262 (30.8%)
Eczema	93 (10.9%)
Infectious Etiologies	9 (1.1%)
Malignancy	3 (0.4%)
Psoriasis	17 (2.0%)
Seborrheic Dermatitis	17 (2.0%)
Skin Changes in Pregnancy	32 (3.8%)
Skin Excoriations	40 (4.7%)
Any Other	94 (11.0%)

Table 2: Dermatological conditions, n (%).

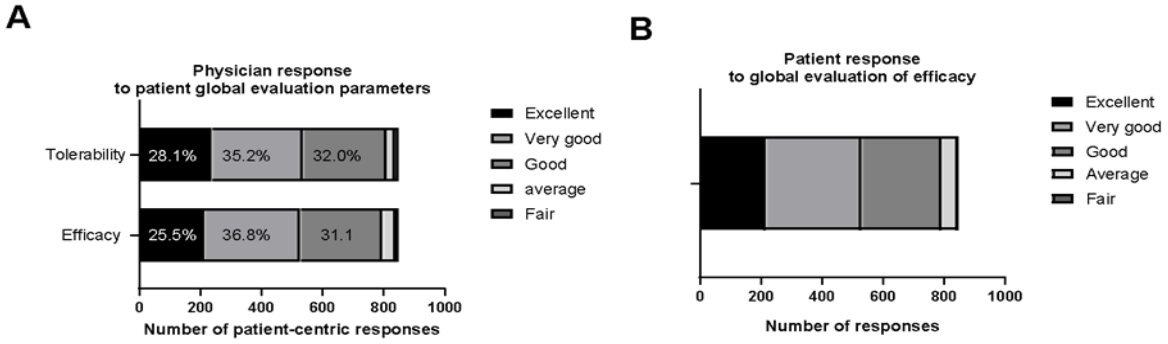

Figure 1: Physician (A) and Patient (B) Global evaluation of efficacy and tolerability of mediterranean rosemary and grapefruit

extract combination.

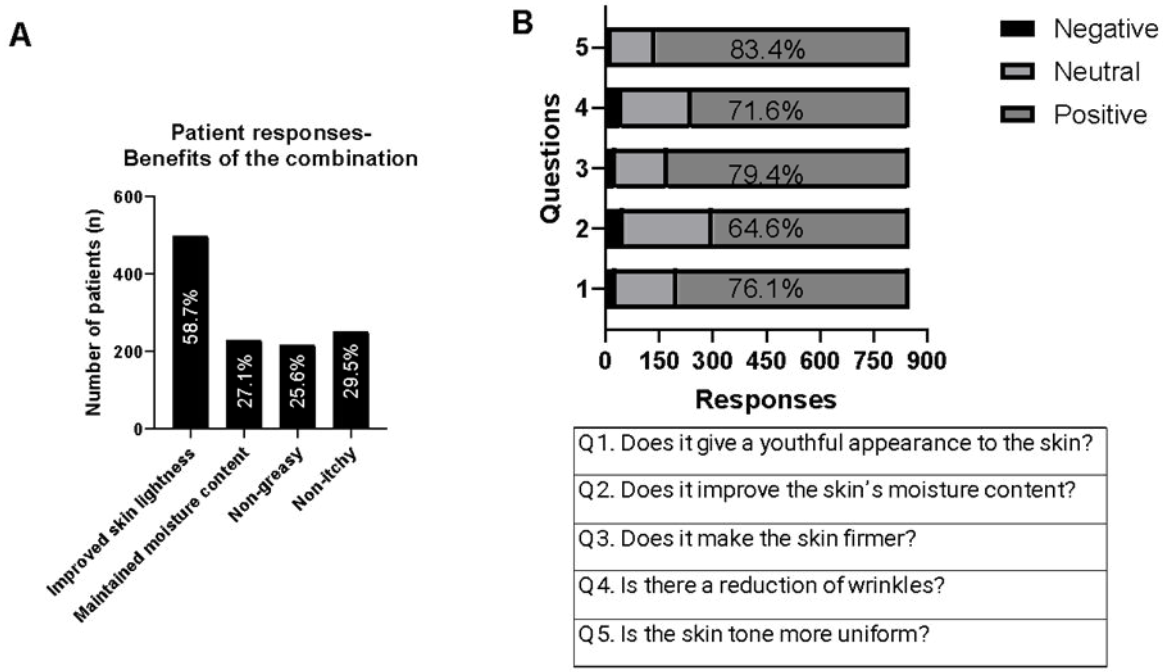

Figure 2: Patient-reported benefits of mediterranean rosemary and grapefruit extract combination (A) Additional benefits contributing to acceptance; (B) Self-assessment of skin improvements.

Nearly 60% of them mentioned improved skin lightness as an added benefit. About 25-30% of them highlighted improved skin moisture content, non-greasiness and non-itchiness as added desirable beneficial attributes of using the product. More than three-fourth of the patients have provided positive responses to questions on self-assessment. These included maintenance of youthful appearance, moisturised skin, firm skin, reduction of wrinkles and uniformity in the skin tone. Out of the 850 patients enrolled in the study, the vast majority (847 patients, 99.6%) did not report any adverse events. Only 3 patients (0.4%) experienced adverse events during the course of treatment. Among these, the reported adverse events included acidity in 2 patients (0.2%) and diarrhea in 1 patient (0.1%).

Discussion

This real-world retrospective analysis provides valuable insights into the safety, tolerability and patient-perceived benefits of a Mediterranean rosemary and grapefruit extract combination used as an oral sun protection agent among a diverse Indian population with various dermatological conditions. The study population, drawn from 85 centers across India, demonstrated demographic characteristics consistent with outpatient dermatology settings, with a mean age of 32.2 years and a slightly higher female representation (59.2%). The most frequent indications for prescription were acne (51.1%), rosacea (30.8%) and eczema (10.9%).

The treatment was primarily administered once daily (92.4%) for an average duration of 9.6 weeks. Both physician and patient global assessments indicated high levels of satisfaction with efficacy and tolerability, with over 93% of participants reporting a positive outcome. Importantly, adverse events were rare and mild, occurring in only 0.4% of patients (acidity in two cases and diarrhea in one), reaffirming the favorable safety profile of this formulation.

A South Indian case series evaluated Golite-OSP (100 mg/day for one month) in 11 patients aged 20-70 years with hyperpigmentation-36.4% had maximum, 18.2% had severe and 45.5% had medium pigmentation [3]. Clinical improvement was observed in all patients, with no adverse events or discontinuations. These results further support the safety and efficacy of Golite-OSP as a systemic photoprotective agent.

A combination of rosemary and citrus (grapefruit) extracts has demonstrated synergistic photoprotective effects in both *in-vitro* and human studies. In the study by Pérez-Sánchez, et al., the blend enhanced HaCaT cell survival post-UVB exposure, reduced intracellular ROS and prevented DNA and chromosomal damage [2]. Human volunteers showed a significant increase in the Minimal Erythema Dose (MED) after oral intake. Navarro, et al., demonstrated that the combination (Nutroxsun®) reduced UV-induced ROS, proinflammatory interleukins and Matrix Metalloproteinases (MMPs) in skin cells [8]. In human subjects, reduced erythema and faster recovery were observed, further supporting its role as an oral photoprotective agent.

In addition to its primary photoprotective role, patients reported several other perceived benefits. More than 75% observed improvements in skin characteristics including a more youthful appearance, enhanced moisturization, improved firmness, wrinkle reduction and uniformity in skin tone. This multidimensional benefit profile likely contributes to higher compliance and overall satisfaction. Interestingly, 60% of patients cited improved skin lightness and 25-30% reported better moisturization, reduced greasiness and less itchiness suggesting potential ancillary benefits that merit further investigation under controlled settings. These findings support the formulation's utility not only in photoprotection but also in enhancing overall skin quality. Topical sunscreens, though widely used, face significant challenges in application and efficacy across various climatic conditions. In hot and humid climates, such as many regions in India, sunscreens can feel greasy, heavy, or occlusive on the skin. This often leads to discomfort, excessive sweating and pore blockage, which discourages regular use and proper reapplication [6]. Furthermore, sweating and humidity accelerate the breakdown or removal of the product, reducing its efficacy unless reapplied frequently-a practice that is often neglected by users [7].

In contrast, cold and dry climates lead to increased skin dryness and sensitivity. Applying sunscreen on dry, flaky, or irritated skin can cause stinging or uneven coverage, reducing its protective efficacy [2]. Additionally, a common misconception that UV exposure is less harmful during cooler weather contributes to poor sunscreen adherence in winter months [9]. Windy or dusty environments further hinder effective sunscreen application-spray-based formulations may not disperse evenly and environmental particles can adhere to moist or sticky skin, impeding comfort and coverage [10].

These challenges highlight the potential of oral sunscreens as a systemic photoprotective strategy. Unlike topicals, oral agents are not affected by sweat, wind, or inconsistent application and they offer year-round, climate-independent protection from UV-induced damage [11]. Despite these promising outcomes, the present study has limitations. These include its retrospective nature, reliance on subjective patient-reported assessments and the absence of a control group. Further randomized controlled trials are needed to confirm these findings and to better understand the mechanisms underlying the observed dermatologic and cosmetic benefits. Overall, this study underscores the potential of a Mediterranean rosemary and grapefruit extract combination as a safe, effective and well-tolerated adjunctive treatment for patients seeking both photoprotection and broader dermatological support.

Conclusion

Golite-OSP has shown promise as an oral sunscreen protection option for patients with diverse dermatological conditions. Real-world evidence derived from both physician and patient perspectives supports the efficacy and safety of this oral formulation containing Mediterranean rosemary and grapefruit extract. Patients also reported several ancillary benefits, including improvements in skin quality and appearance with the product being well tolerated. These findings provide a strong basis for future controlled trials evaluating the full therapeutic potential of this formulation.

Conflicts of Interest

The authors declare no conflict of interest in this paper.

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Authors' Contributions

All authors contributed to conceptualization, treatment execution, manuscript writing and final approval.

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