COMPARATIVE EVALUATION OF CISSUS QUADRANGULARIS GEL AS AN ADJUNCT TO SCALING AND ROOT PLANING IN CHRONIC PERIODONTITIS: A SPLIT-MOUTH CLINICAL TRIAL

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ABSTRACT

BACKGROUND:
In management of periodontitis, combining Scaling and Root Planing (SRP) with local drug delivery enhances the effectiveness of treatment, reduces need for surgical intervention and lower treatment costs for patients. Cissus quadrangularis gel is a potential biomaterial for its anti-inflammatory, antioxidant, and regenerative capability. Thus, this study aims to evaluate the efficiency of cissus quadrangularis gel as an adjunct to SRP in treatment of periodontitis.

AIM:
To evaluate the efficiency of cissus quadrangularis gel as an adjunct to scaling and root planing in treatment of stage II grade A periodontitis.

MATERIAL AND METHOD:
A total of 52 periodontitis patients (aged 25–60 years) with 2 sites per quadrant in split mouth design either maxillary or mandibular arch, exhibited probing depths >4 mm were enrolled. Sites were randomly assigned either group I (SRP alone) or group II (SRP with Cissus quadrangularis gel). Clinical parameters SHI, VAS were recorded at 7th and 14th days. PI, GI, PPD, and rCAL were measured at baseline, 1 month, 3 months and 6 months.

RESULTS:
Intragroup analysis revealed significant improvement in PI, GI, VAS, SHI, PPD, and rCAL over time in both groups. Intergroup comparison showed no significant differences in PI, GI, and SHI. However, Group I demonstrated greater pain relief on days 7 and 14. At 6 months, mean PPD reduced from 4.90 to 2.8 in group I and from 5.03 to 2.23 in group II. rCAL improved from 8.97 to 6.03 in Group I and from 8.47 to 4.70 in group II, with statistically significant improvement (p=0.001).

KEYWORDS: Ciscus quadrangularis, periodontitis, scaling and root planing.

How to cite this article: Patil S, Varshini S, Kolleboina SD, Gaidhankar S, Chambole A, Gaikond P, Prasannakumari. Comparative evaluation of Cissus quadrangularis gel as an adjunct to scaling and root planing in chronic periodontitis: a split-mouth clinical trial. Int J Drug Deliv Technol. 2026;16(74s): 1732-1744. DOI: 10.25258/ijddt.16.74s.144

INRODUCTION

Periodontal disease is an inflammation of the supporting structures of the teeth which occurs due to specific pathogens.[1] Loss of teeth can occur due to bony defects caused by bone resorption as a result of periodontitis.[2]

The key factors responsible for triggering inflammation in periodontitis are derived either from subgingival microbiota or from the immune-inflammatory response of the host.[3] Periodontal pathogens release noxious substances such as proteases, ammonia, or hydrogen sulfide which mount inflammatory attacks on structural proteins like collagen, leading to tissue destruction.[4] The importance of bacteria in the etiology of periodontal pockets has been clearly established, as a result, therapy is necessarily

directed at controlling the bacterial flora associated with the periodontium/ tooth interface.[5]

Genetic factors have been recently considered additional risk factor in the periodontal disease. It is also being investigated that gene-environment interactions are etiologically important in disease pathogenesis but the current knowledge in periodontitis is limited.[6]

The pro-inflammatory cytokine interleukin-1 (IL-1) is considered a key modulator of host responses to microbial infection and a major modulator of extracellular matrix catabolism and bone resorption, eventually leading to severe adult periodontitis.[7]

Treatment to manage periodontal disease can involve mechanical debridement, which includes scaling and root debridement (SRD), destruction of or interference with the metabolism of the organism, including the use of antibiotics and antiseptics, affecting or altering the environment of the microorganisms associated with the periodontium/tooth interface. [8]

Mechanical debridement, the most commonly used treatment modality in the management of periodontal disease has been quite successful in treating the majority of patients but carries a greater risk of recurrence when used alone, specifically in cases with systemic co-morbidities.[9]

Many studies have documented the clinical efficacy of SRP in combination with local agent delivery, which improved the effectiveness of treatment, lowered the frequency of surgical phase and treatment cost for patients. One of the materials used is Cissus quadrangularis (CQ).[10]

As SRP is a basic procedure performed within a small time frame with advanced instruments, local drug delivery must also be just as easy and quick. [11]

The gel form of local drug delivery would be ideal in such cases, which allows quick, generalized application in the affected areas.[12]

Local application of therapeutic agents into the pockets using an irrigating device or syringe has shown to have a significant effect on the subgingival microorganisms.[13] Local drug delivery is recommended as an adjuvant to scaling and root planning (SRP). [14]

Cissus quadrangularis (CQ) is also commonly known as veldt grape and devil's backbone. It belongs to the family of Vitaceae (grape family).[15]

Recent studies on CQ have confirmed the presence of anti-osteoporotic, anti-ulcer, antioxidant, anticancer, anti-analgesic activity [16], and antibacterial activity.[17] It comprises 90% of collagen, mostly type I.[18]

METHODOLOGY

This was a randomized split-mouth design to compare the clinical efficacy in patients treated with Scaling and Root Planing (SRP) alone with that of cissus quadrangularis gel as an adjunct to SRP.

SOURCE OF DATA: 30 subjects were selected for the study based on certain specific inclusion and exclusion criteria. These subjects were selected from the Department of Periodontics S B Patil dental college and hospital who came for regular dental check-ups. Ethical approval for the study was obtained from Institutional Ethics Committee. The present study was carried out in congruity with the ethical code of the World Medical Association (Helsinki's Declaration 2000). All participants were informed about the treatment procedure and its potential benefits.

INCLUSION CRITERIA

- Patients free from any systemic illness.
- Patients 25-60 years of age both male and female
- Patients with at least two bilateral quadrants, either maxilla or mandible, with two sites in each quadrant of the mouth having a probing depth ≥ 4mm.
- Number of remaining teeth > 20 excluding third molars
- patient who are willing to participate in the study

EXCLUSION CRITERIA

- History of underlying systemic disease.
- Pregnant or lactating mothers.
- Acute oral lesions.
- History of any surgical or nonsurgical therapy within the last 6 months.
- Patients on steroid therapy and oral contraceptives.
- Any medication affecting healthy periodontal tissue

Sample size:

- The sample size was estimated using G power software (version 3.0) for the t test.
- A minimum total sample size of 52 was found to be sufficient for an effect size of 0.8 (as assessed from a similar study), an alpha of 0.05, and a power of 95%.

SAMPLING TECHNIQUE: 30 subjects with Stage II - III and Grade A are randomized and allocated into two groups.

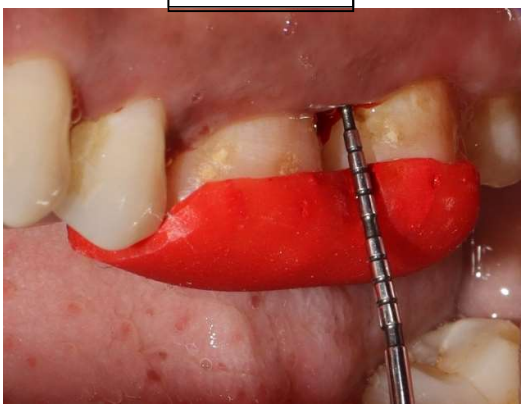
Group I (30 quadrants) receives treatment of scaling and root planing

Group II (30 quadrants) receives treatment of cissus quadrangularis gel as an adjunct to scaling and root planing.

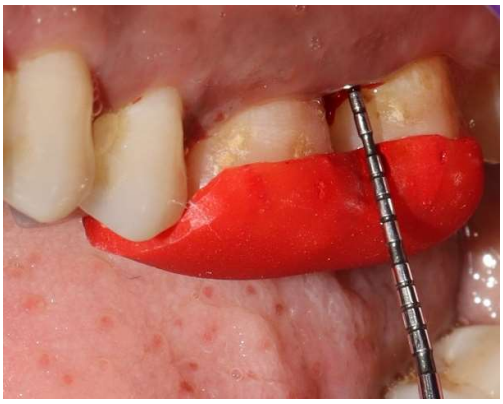
STUDY DESIGN: A Clinical Trial with Split Mouth study design is applied. Therefore, one quadrant of the mouth is taken us group I for SRP and the other contra-lateral quadrant is taken as group II for cissus quadrangularis gel adjunct to SRP.
Duration of study: 6 months
Clinical parameters assessed will be as follows: --
a) Plaque Index (Sillness P and Leo H,1964)
b) Gingival Index (Loe and Sillness, 1963)
c) Relative clinical attachment level (rCAL)
d) Probing pocket depth (PPD)
e) Simplified Healing index (SHI)
f) Visual analogue scale (VAS)
PROCEDURE
Routine blood investigations will be made, and informed consent will be obtained from the patients. The clinicians, patients, and assistants will use standard protective. measures during the procedure. A standardized protocol for sterilization will be followed. The treatment procedure will be performed under local anesthesia.
Group I sites received scaling and root planing under local anesthesia.
Group II sites received scaling and root planing followed by placement of cissus quadrangularis gel with periodontal pack under local anesthesia.
Clinical parameters like plaque index. gingival index, simplified healing index, visual analogue scale, relative clinical attachment level, pocket probing depth will be recorded at baseline, 1, 3 & 6 months.

GROUP I

BASELINE
SCALING

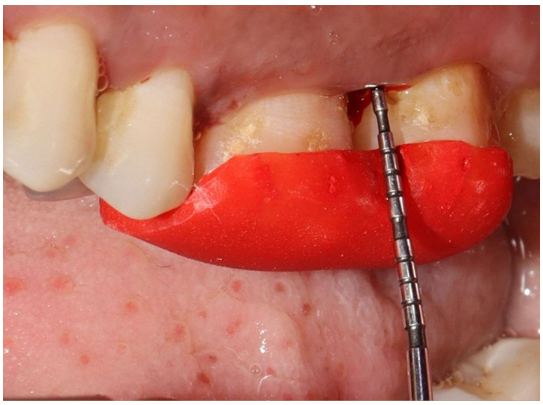


CURETTAGE
1 MONTH FOLLOW UP



6 MONTHS FOLLOW UP

3 MONTHS FOLLOW UP



GROUP II

BASELINE

SCALING

CISSUS QUADRANGULARIS GEL PLACEMENT

CURETTAGE

COE-PAK PLACEMENT

1 MONTHS FOLLOW UP

6 MONTH FOLLOW UP

RESULTS

PLAQUE INDEX

Table : Intragroup comparison of mean PI scores of both groups at different time intervals

	GROUP 1 (Mean ± SD)	MEAN DIFFERENCE FROM BASELINE	P VALUE	GROUP 2 (Mean ± SD)	MEAN DIFFERENCE FROM BASELINE	P VALUE
Baseline	1.6460± 0.45907	—	—	2.3113 ± 0.67251	—	—
3 Months	0.9950± 0.33558	0.6510± 0.54003	.001	1.0733 ± 0.41842	1.2380± 0.45648	.001
6 Months	1.04± 0.330	0.5903± 0.49133	.001	0.94 ± 0.317	1.3697± 0.61486	.001

Intragroup analysis showed a significant reduction in PI from baseline for both groups at 3 months and 6 months. Group 1's mean difference from baseline was **0.651 ± 0.540** at 3 months and **0.590 ± 0.491** at 6 months (p = 0.001).

Group 2 showed even greater improvement with mean differences of **1.238 ± 0.456** and **1.370 ± 0.615** at 3 and 6 months respectively (both p = 0.001). These results indicate significant improvements over time within each group.

Table :Intergroup compa4rison of mean PI scores b/w 2 groups at different time intervals

Time Point	Group 1 (Mean ± SD)	Group 2 (Mean ± SD)	p-value
Baseline	1.646 ± 0.459	2.311 ± 0.673	0.001
At 3 months	0.995 ± 0.336	1.073 ± 0.418	0.427
At 6 months	1.040 ± 0.330	0.940 ± 0.317	0.263

At baseline, Group 1 had a mean PI of 1.646 ± 0.459, and Group 2 had a significantly higher PI of 2.311 ± 0.673 (p = 0.001). At 3 months, the mean PI decreased in both groups to 0.995 ± 0.336 in Group 1 and 1.073 ± 0.418 in Group 2, with no significant difference between groups (p = 0.427). At 6 months, PI remained reduced in both groups (1.040 ± 0.330 in Group 1 and 0.940 ± 0.317 in Group 2), again without significant intergroup difference (p = 0.263).

GINGIVAL INDEX

Table : Intra group comparison of mean GI scores of both groups at different time intervals

Timepoint	Group 1 (Mean ± SD)	Mean Difference from Baseline	P Value	Group 2 (Mean ± SD)	Mean Difference from Baseline	P Value
Baseline	2.1297 ± 0.64706	—	—	2.1643 ± 0.66067	—	—

3 MONTHS FOLLOW UP

3 Months	1.1387 ± 0.34411	0.9910 ± 0.58134	.001	0.9893 ± 0.31174	1.1750 ± 0.61948	.001
6 Months	0.9147 ± 0.34249	1.2150 ± 0.69574	.001	0.8967 ± 0.26479	1.2677 ± 0.63529	.001

Within groups, GI showed statistically significant decreases at 3 and 6 months compared to baseline (p = 0.001 for both groups and timepoints). Group 1 had mean reductions of **0.991 ± 0.581** and **1.215 ± 0.696** at 3 and 6 months, while Group 2 showed reductions of **1.175 ± 0.619** and **1.268 ± 0.635** respectively. This highlights a significant improvement in gingival health over time in both groups.

Table :Intergroup comparison of mean GI score b/w groups at different time intervals

Time Point	Group 1 (Mean ± SD)	Group 2 (Mean ± SD)	p-value
Baseline	2.130 ± 0.647	2.164 ± 0.661	0.838
At 3 months	1.139 ± 0.344	0.989 ± 0.312	0.083
At 6 months	0.915 ± 0.343	0.897 ± 0.265	0.821

The mean GI at baseline was comparable between groups: 2.130 ± 0.647 for Group 1 and 2.164 ± 0.661 for Group 2, with no significant difference (p = 0.838). At 3 months, GI decreased to 1.139 ± 0.344 in Group 1 and 0.989 ± 0.312 in Group 2, with a trend toward significance (p = 0.083). At 6 months, the GI further reduced to 0.915 ± 0.343 and 0.897 ± 0.265 respectively, with no significant difference (p = 0.821).

PROBING POCKET DEPTH

Table : Intra group comparison of mean Probing Pocket Depth score of both groups at different time interval

Timepoint	Group 1 (Mean ± SD)	Mean Difference from Baseline	P Value	Group 2 (Mean ± SD)	Mean Difference from Baseline	P Value
Baseline	4.900 ± 1.1250	—	—	5.033 ± 0.8087	—	—
3 Months	3.167 ± 0.8743	1.7333 ± 0.6915	.001	3.167 ± 0.6477	1.8667 ± 0.7303	.001
6 Months	2.833 ± 0.9855	2.0667 ± 1.1725	.001	2.233 ± 0.7739	2.8000 ± 0.6644	.001

Within groups, PPD significantly reduced over time (p = 0.001). Group 1 showed mean decreases of **1.733 ± 0.692** at 3 months and **2.067 ± 1.173** at 6 months, while Group 2 showed reductions of **1.867 ± 0.730** and **2.800 ± 0.664** respectively. Both groups exhibited clinically significant improvements in pocket depth.

Table :Intergroup comparison of mean probing pocket depth score at different tine interval

Time Point	Group 1 (Mean ± SD)	Group 2 (Mean ± SD)	p-value
Baseline	4.900 ± 1.125	5.033 ± 0.809	0.600
At 3 months	3.167 ± 0.874	3.167 ± 0.648	1.000

At 6 months	2.833 ± 0.986	2.233 ± 0.774	0.011

The baseline mean PPD was similar between groups: 4.900 ± 1.125 in Group 1 and 5.033 ± 0.809 in Group 2 (p = 0.600). At 3 months, PPD decreased to 3.167 ± 0.874 in Group 1 and 3.167 ± 0.648 in Group 2 with no intergroup difference (p = 1.000). At 6 months, Group 1 had a significantly higher PPD (2.833 ± 0.986) compared to Group 2 (2.233 ± 0.774, p = 0.011).

RELATIVE CLINICAL ATTACHMENT LEVEL:

Table :Intragroup comparison of mean Rcal score of both groups at different time intervals

Timepoint	Group 1 (Mean ± SD)	Mean Difference from Baseline	P Value	Group 2 (Mean ± SD)	Mean difference from Baseline	P Value
Baseline	8.97 ± 1.586	—	—	8.47 ± 1.252	—	—
3 Months	7.47 ± 1.408	1.50 ± 1.383	.001	6.57 ± 1.478	1.90 ± 1.494	.001
6 Months	6.03 ± 1.273	2.93 ± 1.507	.001	4.70 ± 1.579	3.77 ± 1.591	.001

Intragroup comparisons showed significant attachment gains in both groups over time (p = 0.000). Group 1 had mean improvements of **1.50 ± 1.383** at 3 months and **2.93 ± 1.507** at 6 months. Group 2 showed greater improvements with mean differences of **1.90 ± 1.494** and **3.77 ± 1.591** respectively, indicating better clinical attachment outcomes.

Table :Intergroup comparison of mean rcal score b/w groups at different time interval

Time Point	Group 1 (Mean ± SD)	Group 2 (Mean ± SD)	p-value
Baseline	8.97 ± 1.586	8.47 ± 1.252	0.181
At 3 months	7.47 ± 1.408	6.57 ± 1.478	0.019
At 6 months	6.03 ± 1.273	4.70 ± 1.579	0.001

At baseline, mean rCAL was **8.97 ± 1.586** in Group 1 and **8.47 ± 1.252** in Group 2, with no significant difference (p = 0.181). At 3 months, rCAL reduced to **7.47 ± 1.408** for Group 1 and **6.57 ± 1.478** for Group 2, with a significant difference favoring Group 2 (p = 0.019). At 6 months, the reduction was further pronounced (**6.03 ± 1.273** in Group 1 vs. **4.70 ± 1.579** in Group 2, p = 0.001).

VISUAL ANALOGUE SCALE

Table : Intra group comparison of mean VAS score of both groups at different time intervals

Timepoint	Group 1 (Mean ± SD)	Mean Difference from Baseline	P Value	Group 2 (Mean ± SD)	Mean Difference from Baseline	P Value
Baseline	2.067 ± 1.3113	—	—	2.567 ± 1.1943	—	—
7 Days	0.633 ± 0.6149	1.4333 ± 1.3047	.001	2.767 ± 0.9714	0.8000 ± 1.2972	.002

14 Days	0.467 ± 0.5074	1.6000 ± 1.1017	.001	1.367 ± 0.8899	2.2000 ± 1.2704	.001

Intragroup changes showed a significant reduction in pain scores over time in both groups. Group 1's pain decreased by **1.433 ± 1.305** at 7 days and **1.600 ± 1.102** at 14 days (p = 0.001). Group 2 also showed significant reductions but less pronounced: **0.800 ± 1.297** at 7 days (p = 0.002) and **2.200 ± 1.270** at 14 days (p = 0.001). This indicates both groups experienced pain relief over time, with Group 1 showing faster improvement.

Table: intergroup comparison of mean VAS score b/w 2 groups at different time intervals

Time Point	Group 1 (Mean ± SD)	Group 2 (Mean ± SD)	p-value
Baseline	2.067 ± 1.311	2.567 ± 1.194	0.001
7TH DAY	0.633 ± 0.615	2.767 ± 0.971	0.001
14^{TH} D	0.467 ± 0.507	1.367 ± 0.890	0.001

At baseline, Group 1 reported significantly lower pain scores (**2.067 ± 1.311**) than Group 2 (**3.567 ± 1.194**) (p = 0.001). By day 7, pain decreased sharply in Group 1 to **0.633 ± 0.615** but remained relatively high in Group 2 (**2.767 ± 0.971**), with a significant intergroup difference (p = 0.001). At day 14, pain scores further dropped to **0.467 ± 0.507** in Group 1 and **1.367 ± 0.890** in Group 2, still no significant different (p = 0.001).

SIMPLIFIED HEALING INDEX

Table : Intragroup comparison of mean SHI scores of both groups at different time intervals

Timepoint	Group 1 (Mean ± SD)	Mean Difference from Baseline	P Value	Group 2 (Mean ± SD)	Mean Difference from Baseline	P Value
7 Days	1.367 ± 0.4901	—	—	1.167 ± 0.3790	—	—
14 Days	1.067 ± 0.2537	0.3000 ± 0.4661	.001	1.000 ± 0.0000	0.1667 ± 0.3790	.023

Within groups, SHI improved significantly from day 7 to day 14, with Group 1 showing a mean difference of **0.300 ± 0.466** (p = 0.001) and Group 2 a difference of **0.167 ± 0.379** (p = 0.023). This suggests both groups experienced significant subjective healing progress over the 14-day period. (Table 12)

Table: Intergroup comparison of mean SHI score b/w 2 groups at different time intervals

Time Point	Group 1 (Mean ± SD)	Group 2 (Mean ± SD)	p-value
7 DAY	1.367 ± 0.490	1.167 ± 0.379	0.082
14 DAY	1.067 ± 0.254	1.000 ± 0.000	0.155

At day 7, Group 1 had a mean SHI of **1.367 ± 0.490**, and Group 2 had **1.167 ± 0.379**, with no significant difference (p = 0.082). At day 14, SHI decreased in both groups to **1.067 ± 0.254** for Group 1 and **1.000 ± 0.000** for Group 2 (p = 0.155) with no significant difference.

DISCUSSION

Periodontitis is a complex, chronic inflammatory disease characterized by the progressive destruction of the periodontal ligament, alveolar bone, and other supporting structures of the teeth [19]. It is initiated by pathogenic biofilms and exacerbated by an imbalanced host immune response [20]. If untreated, it may lead to tooth mobility, tooth loss, and

systemic complications, especially in patients with comorbidities such as diabetes mellitus and cardiovascular disease [21].

Slowly progressive periodontitis is constantly accompanied by the presence of plaque [22]. Thus poor oral hygiene is associated with slowly progressive periodontitis [23].

SRP is considered the gold standard for initial periodontal therapy; however, residual pockets and persistent inflammation are frequently reported, especially in deep sites and areas with complex anatomy []24. This has led to the use of various local drug delivery (LDD) systems as adjuncts, including chlorhexidine, antibiotics, and herbal/antioxidant gels such as lycopene and green tea catechins, all of which have demonstrated additional clinical benefits over SRP alone [25].

Scaling and Root Planing (SRP), a cornerstone of non-surgical periodontal therapy, has been extensively validated for its efficacy in reducing Probing Pocket Depth (PPD), improving Clinical Attachment Levels (CAL), and decreasing gingival inflammation [26]. However, SRP alone may not be sufficient in eliminating pathogenic bacteria from deep periodontal pockets or complex anatomical areas such as furcations [27].

The foundations of traditional medicinal systems have historically been plants [28]. Plant extracts, in particular, have emerged as promising natural antibacterial agents with diverse therapeutic applications for combating pathogenic bacteria [29]. CQ, for instance, contains a plethora of beneficial compounds such as carotene, phytosterol, terpenoids, β-sitosterol, δ-amyrin, δ-amyrone, calcium, flavonoids like quercetin, vitamin C, and stilbene derivatives such as resveratrol, piceatannol, pallidol, perthenocissin, and phytosterols [30].

cissus quadrangularis has traditionally been used in Ayurveda for fracture healing and as an analgesic and anti-inflammatory agent [31]. Modern pharmacological studies have confirmed its antioxidant, anti-inflammatory, antimicrobial, and osteogenic properties, as well as a generally favourable safety profile [32].

In periodontal literature, Jain et al. evaluated bovine-derived hydroxyapatite combined with CQ in intrabony defects and reported superior defect fill and CAL gain compared with hydroxyapatite alone. More recently, a clinical trial comparing open flap debridement (OFD) alone, OFD + CQ gel, and OFD + PRF in generalized periodontitis showed that both CQ gel and PRF groups achieved significantly greater CAL gain and reductions in PPD and radiographic bone loss compared with OFD alone, although PRF provided the best overall outcomes. In vitro work on CQ-doped extracellular matrix/hyaluronic acid scaffolds has further indicated its potential to enhance periodontal tissue regeneration [33].

However, most of these studies have used CQ in combination with regenerative surgery or grafts [34]. By evaluating CQ gel as a locally delivered adjunct to non-surgical SRP in chronic periodontitis, the present study extends the evidence base to a more commonly used, minimally invasive therapeutic approach [35]. The trend of additional PPD reduction and CAL gain in the CQ group in our study is in line with the regenerative and anti-inflammatory effects reported in previous surgical and bone-healing models [36].

This study aimed to evaluate and compare the efficacy of Cissus quadrangularis gel as an adjunct to scaling and root planing in treatment of periodontitis in terms of clinical parameters such as Plaque Index, Gingival Index, Probing Pocket Depth (PPD) and Relative Clinical Attachment Level (rCAL).

In the current study a split-mouth design was implemented where both groups received treatment of scaling and root planning. Only group II received additional Cissus quadrangularis gel placement which was taken in injectable needle, inserted into the pocket until all subgingival areas were filled to the gingival margin.

The results demonstrate a significant intragroup reduction in PI for both groups at 3 and 6 months. Both groups show a statistically significant reduction in plaque index from baseline to 3 months ($p < 0.05$), indicating a clear improvement in oral hygiene.

There was no significant difference in GI between groups at baseline and 1 month.

At 3 months, Group 1 exhibited significantly greater reduction in gingival index compared to Group 2 ($p = 0.019$).

Both groups demonstrated a statistically significant reduction in gingival index from baseline to 3 months ($p < 0.05$), showing improvement in gingival health over time. The reduction in gingival inflammation reflects effective microbial control and anti-inflammatory effects, especially in Group 2.

In both groups, there was a statistically significant reduction in mean PPD from baseline to 1 month and 3 months ($p < 0.05$), indicating significant improvement within each group over time.

There was no significant difference in PPD between groups at baseline and 1 month. However, at 3 months, Group 1 showed significantly greater reduction in PPD than Group 2 ($p = 0.015$).

At baseline and 1 month, both groups were comparable (no significant difference). At 3 months, Group 2 demonstrated significantly greater clinical attachment gain ($p=0.019$). Within each group, significant gain in attachment level occurred from baseline to 3 months ($p < 0.05$).

CONCLUSION

Within the limitations of the study, the following conclusions can be drawn-

- Intragroup comparison the test group & control group data indicates significant improvements in PI, GI, PPD, and rCAL over time.
- Intergroup comparison showed no significant differences between the test and control groups in PI, GI, SHI at different time points, rCAL,PPD showed better outcome in the test group than control group at 6 months. whereas VAS showed better pain control in control group than test group.

The addition of cissus quadrangularis gel demonstrates potential, particularly in enhancing clinical attachment levels and decreasing probing pocket depth. The present study results endorse incorporating cissus quadrangularis gel into clinical practice, particularly for individuals with periodontal conditions, owing to its capacity to improve treatment outcome. Cissus quadrangularis gel provide sustained antimicrobial action and inhibit collagenase activity, promoting connective tissue attachment and periodontal regeneration. Although to the best of our knowledge, this is the first clinical study evaluating the effect of cissus quadrangularis gel as an adjunct to SRP in chronic periodontitis patients with following parameters Plaque Index, Gingival Index, Simplified Healing Index (SHI), and Visual Analogue Scale (VAS), Probing Pocket Depth (PPD) and Relative Clinical Attachment Level (rCAL).

There is a need for further research on this subject to provide a better understanding of the clinical use of Cissus quadrangularis gel therapy with larger sample size.

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