Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359


**REVISÃO SISTEMÁTICA, INTEGRATIVA E DE ESCOPO**

# THE EFFECTIVENESS OF TRIBULUS TERRESTRIS IN THE TREATMENT OF FEMALE SEXUAL DYSFUNCTION

A EFETIVIDADE DO TRIBULUS TERRESTRIS NO TRATAMENTO DA DISFUNÇÃO SEXUAL FEMININA

EFICACIA DEL TRIBULUS TERRESTRIS EN EL TRATAMIENTO DE LA DISFUNCIÓN SEXUAL FEMENINA

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**Abstract**: Female sexual dysfunction (FSD) is a multifactorial problem that can affect quality of life. Despite the already consolidated pharmacological treatment options, alternatives with fewer side effects are being sought. This integrative review aims to evaluate the effectiveness of Tribulus terrestris in the treatment of FSD. The articles were collected between October 2022 and April 2023 from the BVS and PubMed databases, using the descriptors "Tribulus terrestris" and "Sexual Dysfunction", with the Boolean “AND”. The sexual function assessment instruments used by the articles were the Female Sexual Function Index (FSFI), the Sexual Quotient Female Version (SQ-F) and the Female Intervention Effectiveness Index (FIEI). Hormone levels of total, free and bioavailable testosterone and dehydroepiandrosterone (DHEA) were also measured. T. terrestris has been shown to be an effective option in the treatment of FSD with few side effects. When compared to placebo, the domains with the greatest significant differences were: satisfaction (FSFI), sexual desire and interest, arousal and harmony with the partner, comfort and foreplay (SQ-F). Interpretation of the results was limited by the lack of evaluation of subjective arousal parameters and by the heterogeneity of the studies in terms of methodology, population, dose/posology, treatment duration and evaluation instruments.

**Keywords**: Women's health; Sexual health; Sexuality/ Phytochemistry.

**Resumo:** A disfunção sexual feminina (DSF) é um problema multifatorial que pode afetar a qualidade de vida. Apesar das opções de tratamento farmacológico já consolidadas, vêm se buscando alternativas com menos efeitos colaterais. Esta revisão integrativa tem o objetivo de avaliar a efetividade do *Tribulus terrestris* no tratamento da DSF. A coleta dos artigos foi realizada entre outubro de 2022 e abril de 2023, nas bases de dados BVS e PubMed, utilizando os descritores "*Tribulus terrestris*" e "*Sexual dysfunction*", com o booleano “AND”. Os instrumentos de avaliação da função sexual utilizados pelos artigos foram o Female Sexual Function Index (FSFI), o Sexual Quotient Female Version (SQ-F) e o Female Intervention Effectiveness Index (FIEI). Também foram feitas dosagens hormonais de testosterona total, livre e biodisponível e desidroepiandrosterona (DHEA). O *T. terrestris* mostrou-se uma opção efetiva no tratamento da DSF e com poucos efeitos colaterais. Quando comparado ao placebo, os domínios com maiores diferenças significativas foram: satisfação (FSFI), desejo e interesse sexual, excitação e harmonia com o parceiro, conforto e preliminares (SQ-F). A interpretação dos resultados foi limitada pela ausência de avaliação dos parâmetros de excitação subjetiva e pela heterogeneidade dos estudos em relação à metodologia, população, dose/posologia, duração do tratamento e instrumentos de avaliação.

**Palavras-chave**: Saúde da Mulher; Saúde Sexual; Sexualidade; Fitoquímica.

**Resumen**: La disfunción sexual femenina (DSF) es un problema multifactorial que puede afectar a la calidad de vida. A pesar de las opciones de tratamiento farmacológico ya establecidas, se buscan alternativas con menos efectos secundarios. Esta revisión integradora pretende evaluar la eficacia del Tribulus terrestris en el tratamiento de la DSF. Se recopilaron artículos entre octubre de 2022 y abril de 2023

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Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359


de las bases de datos BVS y PubMed, utilizando los descriptores "Tribulus terrestris" y "Sexual dysfunction", con el booleano "AND". Los instrumentos de evaluación de la función sexual en los artículos fueron el Female Sexual Function Index (FSFI), el Sexual Quotient Female Version (SQ-F) y el Female utilizados Intervention Effectiveness Index (FIEI). También se midieron los niveles hormonales de testosterona total, libre y biodisponible y de dehidroepiandrosterona (DHEA). La T. terrestris ha demostrado ser una opción eficaz para tratar la DSF, con pocos efectos secundarios. En comparación con el placebo, los dominios con mayores diferencias significativas fueron: satisfacción (FSFI), deseo e interés sexual, excitación y armonía con la pareja, comodidad y juegos preliminares (SQ-F). La interpretación de los resultados se vio limitada por la falta de evaluación de los parámetros subjetivos de excitación y la heterogeneidad de los estudios en cuanto a metodología, población, dosis/posología, duración del tratamiento e instrumentos de evaluación.

**Palabras clave**: Salud de la mujer; Salud sexual; Sexualidad; Fitoquímica.

## Introduction

As a multifactorial process, the sexual response involves a neuroendocrine mechanism triggered by sexual stimuli and may be influenced by numerous biopsychosocial factors. When these factors are imbalanced, they may lead to sexual dysfunction. Such factors may be neurological (e.g., Parkinson's disease, epilepsy, spinal cord injury, central or peripheral nervous system disorders), hormonal (e.g., menopause, uncontrolled hypo- or hyperthyroidism, hyperprolactinemia, use of combined oral contraceptives or antiandrogen medications), vascular (e.g., reduced blood flow secondary to atherosclerosis, chronic perineal pressure, cardiovascular diseases), muscular (e.g., hypo- or hypertonicity of the pelvic floor muscles), psychological (e.g., a history of sexual or physical abuse, psychiatric disorders such as anxiety and depression, use of psychotropic medications such as serotonin reuptake inhibitors), emotional (e.g., fatigue and stress arising from family or work-related environments), interpersonal relationship-related (e.g., marital conflicts, partner sexual dysfunction), and/or sociocultural (e.g., the belief that sexual activity ends with advancing age, repression of sexual interest or desire, lack of awareness regarding the pleasurable potential of one's own body) (Alves et al., 2022; Parish et al., 2019).

Studies have shown that the prevalence of female sexual dysfunction remains relatively stable across different age groups. However, this occurs because, while the prevalence of sexual problems increases with age, sexual distress tends to decrease concurrently (Parish et al., 2019). The *Prevalence of Female Sexual Problems Associated With Distress and Determinants of Treatment Seeking* (PRESIDE) study, which evaluated 31,581 women in the United States aged 18 to 102 years, found that approximately 40% reported some type of sexual problem related to desire, arousal, or orgasm. Among these, desire-related problems were the most common, followed by low arousal and, lastly, orgasmic difficulties (Shifren et al., 2008).

Despite its high prevalence, female sexual dysfunction is often unrecognized or even undertreated in primary healthcare settings. One reason for this is that physicians without specialized training in sexual health may feel inadequately prepared to identify, manage, or refer these patients appropriately (Parish et al., 2019).

According to the *International Classification of Diseases and Related Health Problems, 11th Revision* (ICD-11), sexual dysfunctions are syndromes encompassing the various ways in which adults may experience difficulties engaging in non-coercive and personally satisfying sexual activities. To be considered a sexual dysfunction, the patient's complaint must occur frequently (in at least 75% of sexual encounters), persist for several months (more than 6 months), and be associated with clinically significant distress.

In women, sexual dysfunctions manifest as chronic sexual symptoms related to sexual pain and to the three phases of the sexual response cycle: desire, arousal, and orgasm (Parish et al., 2019). Accordingly, under ICD-11, sexual dysfunctions may be classified as hypoactive sexual desire dysfunction, sexual arousal dysfunctions, orgasmic dysfunctions, and sexual pain disorders.

Among these conditions, hypoactive sexual desire disorder (HSDD) is the most prevalent and is characterized by the absence or marked reduction of sexual desire or motivation to engage in sexual

DOI: https://doi.org/10.35919/rbsh.v37.1359

activity. It is manifested by reduced or absent spontaneous desire (sexual thoughts or fantasies), diminished responsiveness to erotic stimuli, or an inability to maintain interest in sexual activity once initiated.

Given its multifactorial etiology, the treatment of sexual dysfunction may include pharmacological interventions combined with specific measures targeting psychosocial, behavioral, and sociocultural causes (Weinberger et al., 2018). Pharmacological therapeutic options include hormonal treatments such as intravaginal dehydroepiandrosterone (DHEA) and ospemifene, as well as non-hormonal therapies including flibanserin, sildenafil, vardenafil, oxytocin, bupropion, and buspirone. Nevertheless, there is an ongoing search for new therapeutic alternatives, preferably with fewer adverse effects (Alves et al., 2022).

In this context, one treatment option that has gained increasing attention is the herbal medicine *Tribulus terrestris* (TT). This herbaceous plant of the Zygophyllaceae family contains several bioactive compounds, including steroidal saponins, flavonoids, glycosides, phytosterols, tannins, terpenoids, amide derivatives, amino acids, and proteins. Among these constituents, steroidal saponins and flavonoids are considered the most important metabolites due to their diverse phytochemical properties. Studies have demonstrated that *T. terrestris* has significant pharmacological relevance, particularly regarding the improvement of sexual function and the prevention and treatment of cardiovascular diseases and diabetes. Furthermore, it exhibits hepatoprotective, antioxidant, anti-inflammatory, antibacterial, anti-aging, and antitumor activities (Zhu et al., 2017).

Although *Tribulus terrestris* is prescribed in clinical practice, the benefits of its use for the treatment of female sexual dysfunction remain insufficiently established. Therefore, the objective of this study was to evaluate the effectiveness of *T. terrestris* in the treatment of female sexual dysfunction.

## Methods

This study was conducted as an integrative literature review, which consists of six stages: identification of the topic and development of the guiding research question; literature search and sampling; data extraction and collection; critical appraisal of the included studies; interpretation and discussion of the findings; and presentation of the integrative review.

In the first stage, the guiding research question was developed based on the PICO framework, an acronym for Population (P), Intervention (I), Comparison/Control (C), and Outcome (O). The population (P) was defined as women with any type of sexual dysfunction; the intervention (I) was defined as the use of the herbal medicine *Tribulus terrestris*; the control group (C), when present in the studies, consisted of participants who did not receive *Tribulus terrestris*; and the outcome (O) was defined as improvement in the scores of standardized questionnaires assessing female sexual function. Accordingly, the guiding research question of this study was: *What is the effectiveness of* Tribulus terrestris *in reducing symptoms associated with female sexual dysfunction?*

To be included in this review, studies were required to be published in Portuguese, English, or Spanish and available in full text. In addition, studies had to address the relationship between the use of *Tribulus terrestris* and female sexual dysfunction (e.g., female orgasmic disorder, female sexual interest/arousal disorder, and genito-pelvic pain/penetration disorder). Eligible study designs included cross-sectional, case-control, cohort, and randomized controlled clinical studies. Exclusion criteria comprised review articles, preclinical studies, and studies evaluating sexual dysfunction in men or animals.

In the second stage, articles were retrieved from the PubMed and Virtual Health Library (VHL) databases. These databases were selected based on their scope and relevance to health sciences research. PubMed indexes international journals, comprising those included in MEDLINE, whereas the VHL encompasses regional databases such as LILACS, thereby broadening the identification of studies conducted in Latin America. The literature search was performed between October 2022 and April 2023, and eligible publications were those published between 2000 and 2023. The search strategy employed the English descriptors (DeCS/MeSH) "*Tribulus terrestris*" and "Sexual dysfunction," combined using the Boolean operator "AND." This search yielded 40 articles in PubMed and 39 in the VHL, totaling

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

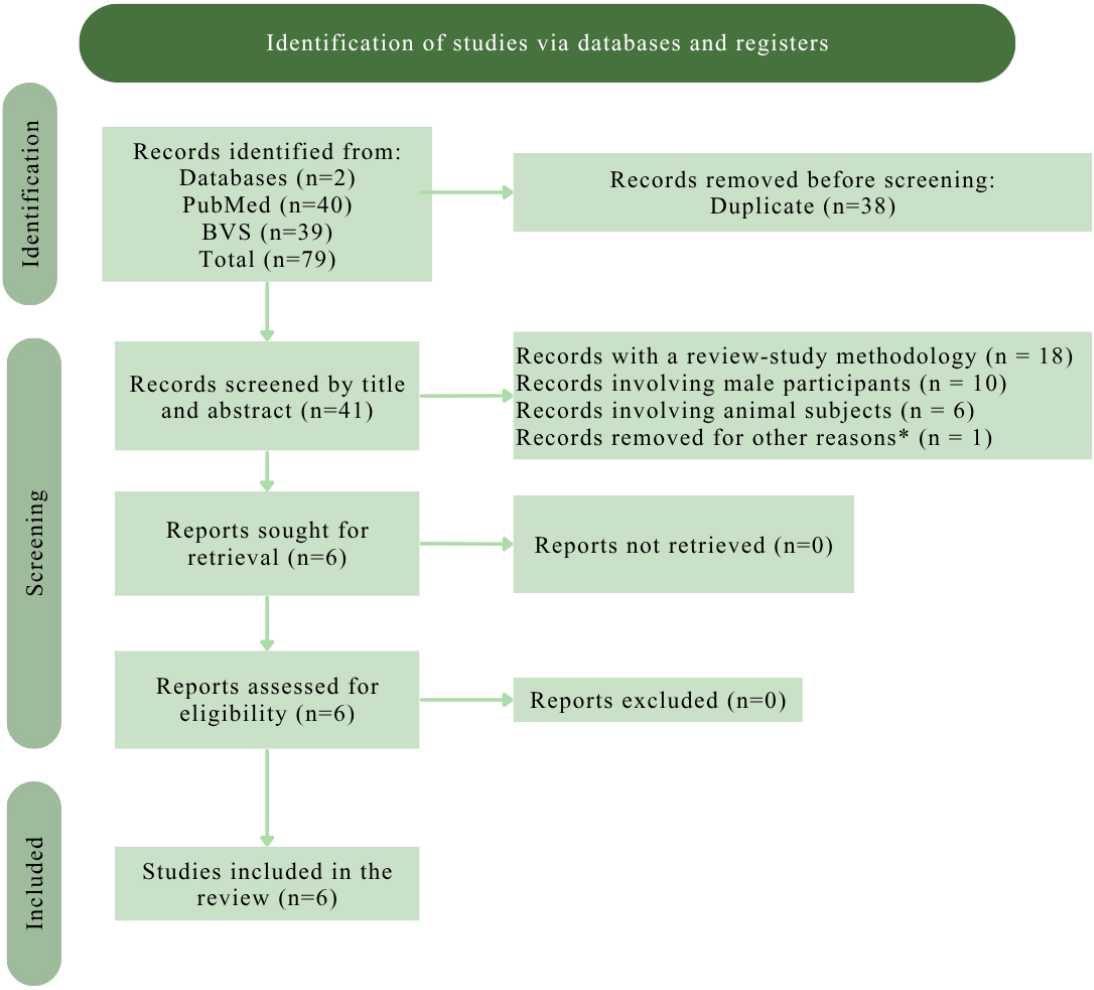

79 records for evaluation. All records were systematically assessed in pairs for duplication, title relevance, abstract eligibility, and full-text inclusion. The assessment was conducted independently by two reviewers, and disagreements were resolved through consultation with a third reviewer.

Of the 79 records identified, 38 were manually excluded due to duplication, leaving 41 articles for title and abstract screening. Among these, 18 were review articles, 10 included only male participants, 6 were animal studies, and 1 was not relevant to the proposed topic. At the end of this stage, six articles remained for full-text assessment, all of which met the eligibility criteria and were included in the present review.

Finally, the selected studies underwent quality and risk-of-bias assessment using the Newcastle–Ottawa Scale (NOS), which evaluates the domains of selection, comparability, and exposure/outcome. The six included studies were scored according to the criteria established by the scale, yielding individual quality scores for each study, with a maximum possible score of nine points.

Based on this process, a flowchart was constructed to provide a concise overview of the article identification, screening, eligibility assessment, and selection procedures used to compose the final study sample (Figure 1).

**Figure 1 -** Flow diagram of the study search and selection process




*Article not aligned with the review topic (dietary supplement use).

**Source**: Prepared by the authors (2026).

## Results and Discussion

The six studies selected for data extraction and critical appraisal were subjected to quality and risk-of-bias assessment using the Newcastle–Ottawa Scale (Table 1).

DOI: https://doi.org/10.35919/rbsh.v37.1359

**Table 1 -** Risk of bias and quality assessment according to the Newcastle–Ottawa Scale

| Newcastle-Otawa Scale | | | | | |
|---|---|---|---|---|---|
| **Study number** | **Study/Year** | **Selection ****** | **Comparability ****** | **Exposure/Outcome *****| **Total 9** |
| 1 | Akhtari *et al.* (2014) | **** | ** | ** | 8/9 |
| 2 | Vale *et al.* (2021) | ** | * | *** | 6/9 |
| 3 | Gama *et al.* (2014) | * | * | ** | 4/9 |
| 4 | Postigo *et al.* (2016) | **** | ** | *** | 9/9 |
| 5 | Vale *et al.* (2017) | **** | ** | *** | 9/9 |
| 6 | Souza *et al.* (2016) | **** | ** | *** | 9/9 |

**Source:** Prepared by the authors (2026).

Subsequently, eight tables were developed to present the findings of the included studies in an organized and concise manner. For the graphical representation of the tables, two arrows were used to indicate statistically significant values with a significance level of $p \leq 0.01$, whereas a single arrow was used for values with a significance level of $0.01 < p \leq 0.05$. A horizontal arrow was used to represent outcomes showing no change before and after treatment or those with a significance level of $p > 0.05$.

According to the table entitled "Description of General Characteristics" (Table 2), two studies were published in 2014, two in 2016, one in 2017, and one in 2021. Five studies were conducted in Brazil, whereas one was conducted in Iran. Furthermore, the studies differed in terms of methodological design: four were prospective, randomized, double-blind, placebo-controlled trials (Studies 1, 4, 5, and 6); one was a prospective, randomized, open-label study (Study 2); and one was a qualitative–quantitative study based on hospital medical records (Study 3). Table 2 also presents the final number of participants included in each study, categorized according to the total sample size, placebo group (when applicable), and *Tribulus terrestris* group.

**Table 2 -** Description of Study Characteristics

| Study number | Study/Year | Country of origin | Study design | Final number of participants | | |
|---|---|---|---|---|---|---|
| | | | | Total | Placebo | *T. terrestris* |
| 1 | Akhtari *et al.* (2014) | Iran | Randomized, double-blind, placebo-controlled clinical trial | 60 | 30 | 30 |
| 2 | Vale *et al.* (2021) | Brazil | Prospective, randomized, open-label study | 85 | - | 85 |
| 3 | Gama *et al.* (2014) | Brazil | Qualitative–quantitative study based on hospital medical records | 144 | - | 144 |
| 4 | Postigo *et al.* (2016) | Brazil | Prospective, randomized, double-blind, placebo-controlled clinical trial | 60 | 30 | 30 |

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359


| | | | | | | |
|---|---|---|---|---|---|---|
| 5 | Vale *et al.* (2017) | Brazil | Prospective, randomized, double-blind, placebo-controlled study | 40 | 20 | 20 |
| 6 | Souza *et al.* (2016) | Brazil | Prospective, randomized, double-blind, placebo-controlled study | 36 | 16 | 20 |

**Source:** Prepared by the authors (2026).

The table entitled "Description of Samples, Treatments, and Questionnaires" (Table 3) presents specific information regarding the study population, treatment regimens, and sexual function assessment instruments used in each study. The mean age of the study populations ranged from 36 (± 6.24) to 56 (± 5.8) years. Two studies evaluated women of reproductive age (Studies 1 and 3), one evaluated premenopausal women (Study 5), two evaluated postmenopausal women (Studies 4 and 6), and one compared treatment outcomes between premenopausal and postmenopausal women (Study 2). Regarding pharmaceutical formulation and dosage regimen, one study (Study 1) evaluated a syrup containing vaporized ethanolic extract of *T. terrestris* (3.5 g of ethanolic extract per 5 mL of syrup), administered at a dose of 7.5 mL twice daily for 28 days. The remaining five studies (Studies 2, 3, 4, 5, and 6) used 250-mg *Tribulus terrestris* tablets. Of these, three studies specifically reported the use of Androsten® tablets (Studies 3, 5, and 6), whereas two did not specify the commercial formulation (Studies 2 and 4). Among the tablet-based interventions, two studies administered one tablet three times daily for 90 days (Studies 3 and 4), and two administered three tablets daily for 120 days (Studies 5 and 6). One study (Study 2) divided participants into two intervention groups: TT3 (*Tribulus terrestris* 94 mg administered three times daily for 90 days) and TT1 (*Tribulus terrestris* 280 mg administered once daily for 90 days). Finally, Table 3 specifies the instruments used to assess sexual function: the *Female Sexual Function Index* (FSFI), the *Sexual Quotient–Female Version* (SQ-F), and/or the *Female Intervention Effectiveness Index* (FIEI). Two studies employed only the FSFI questionnaire (Studies 1 and 3), three studies used both the FSFI and SQ-F questionnaires (Studies 2, 5, and 6), and one study used the SQ-F and FIEI questionnaires (Study 4). Consequently, the FSFI was the most frequently utilized assessment tool among the included studies.

**Table 3 -** Description of Samples, Treatments, and Questionnaires

| n | Article | Reproductive Period | | | Age (years) (mean ± SD) | Dosage Form/Brand | Dosage regimen | t | Questionnaire | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Fertile years / reproductive age | Pre-MNP | Pos-tMNP | | | | | FSFI | SQ-F | FIEI |
| 1 | Akhtari *et al.* (2014) | X (N=60) | | | PL: 36,13 ± 5,88<br>TT: 36 ± 6,24 | Syrup containing evaporated ethanolic extract of *T. terrestris* (3.5 g of ethanolic extract per 5 mL of syrup) | 7.5 mL of syrup twice daily | 28 days | X | | |
| 2 | Vale *et al.* (2021) | | X (N=42) | X (N=43) | PreM: 38,9 ± 7,4 | 250 mg *T. Terrestris* tablet | *T. terrestris* 94 mg, 3 times daily (TT3) | 90 days | X | X | |

DOI: https://doi.org/10.35919/rbsh.v37.1359

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | PostM: 56 ± 5,3 | | *T. terrestris* 280 mg, once daily (TT1) | | | | |
| 3 | Gama *et al.* (2014) | X (N=144) | | | 41,01 ± 7,07 | 250 mg *T. terrestris* tablet (Androsten®) | 1 tablet three times daily | 90 days | X | | |
| 4 | Postigo *et al.* (2016) | | | X (N = 60) | PL: 54 ± 5,1<br>TT: 56 ± 5,8 | 250 mg *T. Terrestris* tablet | 1 tablet three times daily | 90 days | | X | X |
| 5 | Vale *et al.* (2017) | | X (N = 40) | | PL: 42 ± 2,5<br>TT: 37,3 ± 2,5 | 250 mg *T. terrestris* tablet (Androsten®) | 3 tablets per day | 120 days | X | X | |
| 6 | Souza *et al.* (2016) | | | X (N = 36) | 54 ± 11 | 250 mg *T. terrestris* tablet (Androsten®) | 3 tablets per day | 120 dias | X | X | |

**Source:** Prepared by the authors (2026).

**Caption**: n=study number; MNP=menopause; t=treatment duration; SD= standard deviation; PL=placebo group; TT= *Tribulus terrestris group*; PreM= premenopause group; PostM= postmenopause group; TT3=*Tribulus terrestris* 94 mg, 3 times daily, for 90 days; TT1=*Tribulus terrestris* 280 mg, once daily for 90 days; FSFI=*Female Sexual Function Index*; SQ-F=*Sexual Quotient Female Version*; FIEI=*Female Intervention Effectiveness Index.*

The diagnosis of female sexual dysfunction is primarily clinical and may be complemented through the use of validated assessment scales designed to facilitate the multidimensional evaluation of sexual function. Questionnaires are particularly suitable for this purpose because they are cost-effective and provide a non-intimidating approach to assessment (Lima et al., 2010). Accordingly, female sexuality parameters were evaluated using the three questionnaires previously mentioned, which are described below.

The *Female Sexual Function Index* (FSFI) (Appendix A) is based on the classification of female sexual dysfunction established by the American Foundation for Urologic Disease and has been validated for women aged 18 to 74 years (Lima et al., 2010). This instrument assesses six domains of sexual function through 19 items: desire, arousal, lubrication, orgasm, satisfaction, and pain. The total score is calculated by summing the scores of each domain and multiplying them by their respective weighting factors, yielding a final score ranging from 2 to 36 points. Higher scores indicate better female sexual function (Rosen et al., 2000).

The *Sexual Quotient–Female Version* (SQ-F) (Appendix B) is an instrument that evaluates, using accessible language, the phases of the sexual response cycle as well as additional domains, including sexual desire and interest, foreplay, personal arousal and partner synchrony, comfort, orgasm, and satisfaction. Each item is scored on a scale ranging from 0 to 5, and the final result is multiplied by two, generating a total score ranging from 0 to 100 points. Higher scores indicate better sexual function (Abdo, 2006; Lima et al., 2010).

The *Female Intervention Effectiveness Index* (FIEI) (Appendix C) is a brief seven-item questionnaire designed to provide a more immediate assessment based on the physiology of sexual dysfunction. It evaluates treatment effectiveness through a subjective comparative analysis of pre- and post-treatment conditions. Five items assess arousal-related variables (vaginal lubrication, quantity and quality

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359


of sensation, ability to achieve orgasm, and sexual satisfaction), whereas the remaining two items evaluate treatment-related adverse effects and the overall quality of the sexual experience following treatment (Berman et al., 2001).

The table entitled "Overall Scores of Sexual Function Assessment Questionnaires" (Table 4) presents the overall scores obtained using the *Female Sexual Function Index* (FSFI) and the *Sexual Quotient–Female Version* (SQ-F). Discrepancies were observed in the definition of the domains assessed by the SQ-F instrument, and this lack of uniformity may complicate the interpretation and comparison of the reported findings. The FIEI does not generate a numerical overall score, as it is based on a qualitative comparison of conditions before and after treatment.

**Table 4 -** Overall score of sexual function assessment questionnaires

| Study number | Article | Female Sexual Function Index (FSFI) | | Sexual Quotient Female Version (SQ-F) | |
|---|---|---|---|---|---|
| 1 | Akhtari *et al.* (2014) | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | ↑ | ↑ | Score not assessed | |
| 2 | Vale *et al.* (2021) | Premenopause | Postmenopause | Premenopause | Postmenopause |
| | | ↑↑ | ↑↑ | ↑↑ | ↑↑ |
| 3 | Gama *et al.* (2014) | *T. terrestris* | | *T. terrestris* | |
| | | ↑↑ | | Score not assessed | |
| 4 | Postigo *et al.* (2016) | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | Score not assessed | | ↑↑ | ↑↑# |
| 5 | Vale *et al.* (2017) | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | ↑↑ | ↑↑ | Total score not assessed | |
| 6 | Souza *et al.* (2016) | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | ↑↑ | ↑↑ | Total score not assessed | |

**Source**: Prepared by the authors (2026).
**Caption**: ↑= increase with p ≤ 0,05; ↑↑= increase with p ≤ 0,01; #= statistically significant difference between ***T. terrestris*** and placebo.

Tables 5, 6, and 7 summarize the assessment of each domain of female sexual function according to the application of the FSFI, SQ-F, and FIEI questionnaires, respectively.

DOI: https://doi.org/10.35919/rbsh.v37.1359

**Table 5 -** *Female Sexual Function Index* (FSFI)

| n | Article | Desire | | Arousal | | Lubrication | | Orgasm | | Satisfaction | | Pain | | Total Score | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | Akhtari *et al.* (2014) | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | ↑↑ | ↑↑ | ↑ | ↑ | ↑↑ | ↑↑ | ↑↑ | ↑↑ | ↑↑ | ↑↑ | ↑ | ↑ | ↑ | ↑ |
| 2 | Vale *et al.* (2021) | PreM | Post M | PreM | Post M | PreM | Post M | PreM | Post M | PreM | Post M | PreM | Post M | PreM | Post M |
| | | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑ | TT3: ↑↑ | TT3: ↑↔ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ |
| | | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ |
| 3 | Gama *et al.* (2014) | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | - | ↑↑ | - | ↑↑ | - | ↑↔ | - | ↑↑ | - | ↑↑ | - | ↓↔ | - | ↑↑ |
| 5 | VALE *et al.* (2018) | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | ↑↑ | ↑↑ | ↑↑ | ↑↑ | ↑↔ | ↑↑ | ↑ | ↑↑ | ↑ | ↑↑# | ↑↔ | ↑ | ↑↑ | ↑↑ |
| 6 | Souza *et al.*[21] (2016) | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | ↑↑ | ↑↑ | ↑ | ↑↑ | ↑ | ↑↑ | ↑↑ | ↑↑ | ↑ | ↑↑ | ↑ | ↑↑ | ↑↑ | ↑↑ |

**Source:** Prepared by the authors (2026).

**Caption**: n=study number; PL= placebo group; TT= *Tribulus terrestris group*; PreM= premenopause group; PostM= postmenopause group; ↑= increase with

p ≤ 0,05; ↑↑ = increase with p ≤ 0,01; ↑↔= increase with p > 0,05; ↓↔= decrease with p > 0,05; #= statistically significant difference between ***T. terrestris*** and placebo; TT3= *Tribulus terrestris* 94 mg, 3 times daily, for 90 days; TT1= *Tribulus terrestris* 280 mg, once daily for 90 days.

*Article 4 did not administer the FSFI questionnaire.

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

**Table 6 -** *Sexual Quotient Female Version* (SQ-F)

| n | Article | Domains of sexual function | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | Vale *et al.* (2021) | **Sexual desire** | | **Arousal / Lubrication** | | **Pain** | | **Orgasm** | | **Satisfaction** | | **Total Score** | |
| | | PreM | PostM | PreM | PostM | PreM | PostM | PreM | PostM | PreM | PostM | PreM | PostM |
| | | TT3: ↑↔ | TT3: ↑ | TT3: ↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑ | TT3: ↑↔ | TT3: ↑↔ | TT3: ↑ | TT3: ↑↑ | TT3: ↑↑ | TT3: ↑↑ |
| | | TT1: ↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↔ | TT1: ↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ | TT1: ↑↑ |
| 4 | Postigo *et al.* (2016) | **Sexual desire and interest** | | **Foreplay** | | **Arousal and harmony with the partner** | | **Comfort** | | **Orgasm and Satisfaction** | | **Total Score** | |
| | | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | ↑↑ | ↑↑# | ↑↑ | ↑↑# | ↑↑ | ↑↑# | ↑↑ | ↑↑# | ↔ | ↑↔ | ↑↑ | ↑↑# |
| 5 | Vale *et al.* (2017) | **Sexual desire** | | **Arousal / Lubrication** | | **Pain** | | **Orgasm** | | **Satisfaction** | | **Total Score** | |
| | | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | ↑↔ | ↑↑ | ↑↔ | ↑↑ | ↑↔ | ↑ | ↓↔ | ↑↑ | ↓↔ | ↑↑ | - | |
| 6 | Souza *et al.* (2016) | **Sexual desire** | | **Arousal / Lubrication** | | **Pain** | | **Orgasm** | | **Satisfaction** | | **Total Score** | |
| | | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT | PL | TT |
| | | ↔ | ↑↑ | ↑↔ | ↑ | ↑↔ | ↑ | ↑↔ | ↔↔ | ↓↔ | ↔ | - | |

**Source**: Prepared by the authors (2026).

**Caption:** n=study number; PL= placebo group; TT=*Tribulus terrestris* group; PreM= premenopause group; PostM= postmenopause group; ↑= increase with p ≤ 0,05; ↑↑= increase with p ≤ 0,01; ↑↔= increase with p > 0,05; ↓↔ = decrease with p > 0,05; ↔↔= no change with p ≤ 0,05; ↔= no change with p

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Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

> 0,05; #= statistically significant difference between *T. terrestris* and placebo; TT3= *Tribulus terrestris* 94 mg, 3 times daily, for 90 days; TT1= *Tribulus terrestris* 280 mg, once daily for 90 days.

*Articles 1 and 3 did not administer the SQ-F questionnaire.

**Table 7 -** *Female Intervention Effectiveness Index* (FIEI)

| n | Article | Vaginal lubrication during intercourse and/or other sexual stimulation (foreplay) | | Sensation in the genital organs (vagina, labia majora and clitoris) during intercourse and/or other sexual stimulation (foreplay) | | Perceived change in genital sensation | | Sexual intercourse and/or other sexual stimulation | | Ability to achieve orgasm | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Placebo | *T. terrestris* | Placebo | *T. terrestris* | Placebo | *T. terrestris* | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| 4 | Postigo *et al.* (2016) | ↔↔ | ↑↑ | ↔↔ | ↑↑ | ↔↔ | ↑↑ | ↓↓ | ↑↑ | ↔ ↔ | ↑↑ |

**Source**: Prepared by the authors (2026).

**Caption:** n=study number; ↑↑= item response indicating improvement with p ≤ 0,01; ↓↓= item response indicating worsening with p ≤ 0,01; ↔↔ = item response indicating no change with p ≤ 0,01.

1. *Articles 1, 2, 3, 5 and 6 did not administer the FIEI questionnaire.

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

**Table 8 –** Testosterone dosage

| n | Article | Total testosterone (serum) | | Free testosterone | | Bioavailable testosterone | |
|---|---|---|---|---|---|---|---|
| | | **Premeno-pause** | **Postmeno-pause** | **Premeno-pause** | **Postmeno-pause** | **Premeno-pause** | **Postmeno-pause** |
| 2 | Vale *et al.* (2021) | TT3: ↑↔ | TT3: ↑↔ | TT3: ↑↔ | TT3: ↑ | TT3: ↑↔ | TT3: ↑↔ |
| | | TT1: ↑↑ | TT1: ↑ | TT1: ↑↑ | TT1: ↑ | TT1: ↑↑ | TT1: ↑ |
| | | Total score: ↑↑ | Total score: ↑↑ | Total score: ↑↑ | Total score: ↑↑ | Total score: ↑↑ | Total score: ↑ |
| 3 | Gama *et al.* (2014) | Placebo | *T. terrestris* | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | - | ↓↔ | - | ↓↓ | Not assessed | |
| 5 | Vale *et al.* (2017) | Placebo | *T. terrestris* | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | ↓↔ | ↑↔ | ↔ | ↑ | ↔ | ↑ |
| 6 | Souza *et al.* (2016) | Placebo | *T. terrestris* | Placebo | *T. terrestris* | Placebo | *T. terrestris* |
| | | ↓↔ | ↑↔ | ↔ | ↑ | ↓↔ | ↑ |

**Source**: Prepared by the authors (2026).
**Caption:** n=study number; ↑= increase with p ≤ 0,05; ↑↑= increase with p ≤ 0,01; ↑↔ = increase with p > 0,05; ↓↓= decrease with p ≤ 0,01; ↓↔ = decrease with p > 0,05; ↔= no change detected; TT3= *Tribulus terrestris* 94 mg, 3 times daily, for 90 days; TT1= *Tribulus terrestris* 280 mg, once daily for 90 days.
*Articles 1 and 4 did not perform hormonal level measurements.

DOI: https://doi.org/10.35919/rbsh.v37.1359

Some of the included studies incorporated hormonal assessments. Four studies (Studies 2, 3, 5, and 6) evaluated serum total testosterone, free testosterone, and bioavailable testosterone levels, and the results are presented in the table entitled "Testosterone Measurements" (Table 8). In addition, one study (Study 3) assessed dehydroepiandrosterone (DHEA) levels, whereas another (Study 2) complemented the hormonal evaluation by measuring prolactin, thyroid-stimulating hormone (TSH), and sex hormone-binding globulin (SHBG) levels in the participants. Studies 1 and 4 did not include laboratory analyses.

Finally, the table entitled "Treatment-Related Adverse Events and Study Conclusions" (Table 9) summarizes the adverse events associated with the administered treatments and presents the corresponding conclusions of each included study.

**Table 9 -** Adverse treatment reactions and conclusion

| n | Article | Adverse reactions | Conclusion |
|---|---|---|---|
| 1 | Akhtari *et al.* (2014) | Only one patient reported grade 1 abdominal cramping. | *Tribulus terrestris* may safely and effectively improve sexual desire in women with HSDD. Further investigation of *Tribulus terrestris* in women is warranted. |
| 2 | Vale *et al.* (2021) | No patients reported adverse effects. | *Tribulus terrestris* is an effective alternative for the treatment of pre- and postmenopausal women with FSD, likely through a mechanism involving increased serum testosterone levels. In postmenopausal women, it may also improve clitoral artery blood flow. A dose of 280 mg once daily appears to be more effective than a divided dose administered three times daily. |
| 3 | Gama *et al.* (2014) | Transient and non-serious adverse effects were reported, mostly related to the gastrointestinal tract. | *Tribulus terrestris* extract is safe and effective in the treatment of female sexual dysfunction. The concurrent improvement in female sexual function and increase in DHEA levels suggests underlying physiological changes associated with clinical improvement following treatment. |
| 4 | Postigo *et al.* (2016) | A higher incidence of adverse effects was observed in the *Tribulus terrestris* group compared to the placebo group; the most frequent adverse effects were diarrhea, nervousness, dizziness, and nausea. | After 90 days, *Tribulus terrestris* at the doses used was effective in treating sexual complaints in postmenopausal women. |
| 5 | Vale *et al.* (2017) | No patients reported adverse effects. | *Tribulus terrestris* may be a safe alternative for the treatment of premenopausal women with HSDD, as it was effective in reducing symptoms without adverse effects, likely due to increased free and bioavailable testosterone levels. |

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

| | | | |
|---|---|---|---|
| 6 | Souza *et al.* (2016) | Few adverse effects were reported, and only six women (three in each group) withdrew from the study due to mild adverse effects (nausea), which were unlikely to be attributable to the medication. | *Tribulus terrestris* may be a safe alternative for the treatment of HSDD in postmenopausal women, as it is effective in reducing symptoms with few adverse effects, likely through a mechanism involving increased free and bioavailable testosterone levels. However, further studies with larger sample sizes are needed to confirm these findings. |

**Source**: Prepared by the authors (2026).
**Caption:** n=study number; HSDD = Hypoactive Sexual Desire Disorder; FSD = Female Sexual Dysfunction; DHEA = dehydroepiandrosterone.

In Studies 1, 2, 3, 5, and 6, which employed the FSFI questionnaire, the following domains were assessed: desire, arousal, lubrication, orgasm, satisfaction, pain, and total score (Table 5). Studies 1, 5, and 6 compared placebo with *T. terrestris*. In these studies, both the *T. terrestris* (TT) and placebo groups demonstrated significant improvements in the domains of desire (Studies 1, 5, and 6), arousal (Studies 1, 5, and 6), lubrication (Studies 1 and 6), orgasm (Studies 1, 5, and 6), satisfaction (Studies 1, 5, and 6), pain (Studies 1 and 6), and total score (Studies 1, 5, and 6). However, significant improvements exclusively observed in the TT group were found in the domains of lubrication (Study 5) and pain (Study 5). Furthermore, although both the placebo and TT groups exhibited improvement in the satisfaction domain in Study 5, the magnitude of improvement was significantly greater in the TT group compared with placebo.

Study 2 performed comparative analyses between premenopausal and postmenopausal women and between different dosing regimens, referred to as TT3 and TT1. In the premenopausal group, improvements were observed in desire (TT3 and TT1), arousal (TT3 and TT1), lubrication (TT3 and TT1), orgasm (TT3 and TT1), satisfaction (TT1), pain (TT3 and TT1), and total score (TT3 and TT1). In the postmenopausal group, improvements were observed in desire (TT3 and TT1), arousal (TT3 and TT1), lubrication (TT3 and TT1), orgasm (TT3 and TT1), satisfaction (TT3 and TT1), pain (TT3 and TT1), and total score (TT3 and TT1). Unlike the other studies, Study 3 was based on a retrospective analysis of medical records following TT use and demonstrated improvements in desire, arousal, orgasm, satisfaction, and total score.

Overall, when assessed using the FSFI questionnaire, the most favorable outcome associated with this herbal intervention—interpreted as the greatest statistically significant difference compared with placebo—was observed in the satisfaction domain among premenopausal women receiving one 250-mg *T. terrestris* tablet (Androsten®) three times daily for 120 days. However, when administered at a dose of 94 mg three times daily for 90 days, no improvement was observed in the satisfaction domain. In women of reproductive age, no improvement was detected in the lubrication and pain domains when a 250-mg *T. terrestris* tablet (Androsten®) was administered three times daily for 90 days. Placebo treatment in premenopausal women did not result in improvements in lubrication or pain.

In Studies 2, 5, and 6, which utilized the SQ-F questionnaire, the following domains were assessed: sexual desire, arousal/lubrication, pain, orgasm, satisfaction, and total score (Table 6). Studies 5 and 6 evaluated the effects of placebo and *T. terrestris*. The placebo group did not demonstrate significant improvement in any domain. In contrast, the TT group showed significant improvements in sexual desire (Studies 5 and 6), arousal/lubrication (Studies 5 and 6), pain (Studies 5 and 6), orgasm (Study 5), and satisfaction (Study 5).

In Study 2, premenopausal and postmenopausal groups receiving different dosing regimens (TT3 and TT1) were evaluated. The premenopausal group showed improvements in sexual desire (TT1), arousal/lubrication (TT3 and TT1), pain (TT3), orgasm (TT1), satisfaction (TT3 and TT1), and total score (TT3 and TT1). The postmenopausal group demonstrated improvements in sexual desire (TT3 and TT1), arousal/lubrication (TT3 and TT1), pain (TT3 and TT1), orgasm (TT1), satisfaction (TT3 and TT1), and total score (TT3 and TT1).

DOI: https://doi.org/10.35919/rbsh.v37.1359

Study 4 differed in its nomenclature of domains, which included sexual desire and interest, foreplay, arousal and partner harmony, comfort, orgasm and satisfaction, and total score. Both the placebo and TT groups showed improvements in sexual desire and interest, foreplay, arousal and partner harmony, comfort, and total score. Nevertheless, the TT group demonstrated a higher level of statistical significance than the placebo group in the domains of sexual desire and interest, foreplay, arousal and partner harmony, comfort, and total score.

In summary, assessment using the SQ-F questionnaire demonstrated that *T. terrestris* administration (one 250-mg tablet three times daily for 90 days) in postmenopausal women was significantly more effective than placebo across all domains except orgasm and satisfaction, for which neither *T. terrestris* nor placebo produced significant effects. Findings obtained with this instrument revealed greater differences between TT and placebo treatment, with significant improvements observed predominantly following administration of the herbal therapy.

Although the FIEI questionnaire was infrequently used among the included studies, it provides an immediate and subjective assessment of the pharmacological intervention under investigation.

Study 4 was the only study that employed the FIEI questionnaire. It qualitatively assessed the following domains: vaginal lubrication during intercourse and/or other sexual stimulation (foreplay); sensation in the genital organs (vagina, labia majora, and clitoris) during sexual activity or other forms of sexual stimulation (foreplay); perceived changes in genital sensation; sexual intercourse and/or other sexual stimulation; and ability to achieve orgasm. Responses were categorized as improvement, worsening, or no change in the evaluated domain (Table 7). The placebo group reported no change across all domains except "sexual intercourse and/or other sexual stimulation," for which a worsening response was reported. Conversely, the TT group reported significant improvement across all evaluated domains.

Regarding hormonal measurements, Studies 5 and 6 demonstrated that serum total testosterone levels did not change before and after treatment in either the TT or placebo groups. However, these studies reported significant increases in free and bioavailable testosterone levels among women receiving *T. terrestris*, whereas no such increases were observed in the placebo group, despite improvements in certain sexual function parameters (Table 8).

Study 3, which did not include a placebo group, likewise found no changes in serum total testosterone levels. However, a significant reduction in free testosterone levels was observed following TT administration (Table 8). Additionally, this study measured DHEA concentrations and detected a significant increase after *T. terrestris* treatment. Bioavailable testosterone was not assessed.

Study 2 detected no changes in total serum testosterone, free testosterone, or bioavailable testosterone levels among premenopausal or postmenopausal women receiving the TT3 regimen, except for a significant increase in free testosterone levels among postmenopausal women. In contrast, the TT1 regimen resulted in increased levels of total serum testosterone, free testosterone, and bioavailable testosterone, particularly among premenopausal women (Table 8). Study 2 also measured prolactin, TSH, and SHBG levels; however, no significant differences were observed before and after treatment in any study group.

According to Neychev and Mitev (2016), the aphrodisiac and prosexual effects attributed to *T. terrestris* have traditionally been linked to its purported ability to increase testosterone levels or those of its precursors. However, Ghanbari et al. (2021) concluded that the principal mechanism underlying the effects of *T. terrestris* on female sexual function is related to protodioscin, the dominant active constituent of the herbal preparation. This steroidal saponin stimulates nitric oxide production, promoting vasodilation within the genital endothelium. Enhanced vasodilation increases blood flow to the pelvic region, thereby improving local sensitivity and vaginal transudate production. As lubrication increases, physiological genital arousal is enhanced, which may subsequently facilitate sexual desire and orgasm. According to the literature, *T. terrestris* does not significantly influence subjective sexual arousal; therefore, improvements are not consistently observed across all domains assessed by sexual function questionnaires, even when the herbal treatment enhances lubrication (Handy, Stanton, & Meston, 2018; Handy, Freihart, & Meston, 2020).

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

In addition to stimulating nitric oxide production, protodioscin may increase DHEA levels, the deficiency of which has been associated with sexual dysfunction (Ghanbari et al., 2021). Furthermore, protodioscin appears to mimic the activity of the enzyme 5α-reductase, which converts testosterone into its active metabolite, dihydrotestosterone (DHT), in the gonads and peripheral tissues (Adaikan, Gauthaman, & Prasad, 2001). Among the six reviewed studies, only Study 3 evaluated DHEA levels before and after TT treatment. The results demonstrated a significant increase following 90 days of treatment, supporting both the known biochemical composition of the herbal preparation and the findings reported in previous studies.

Considering the proposed mechanism of action of *T. terrestris*, future studies investigating its effectiveness in female sexual dysfunction should evaluate subjective sexual arousal concurrently with objective markers of sexual arousal. More specifically, the effectiveness of *T. terrestris* could be more comprehensively assessed through the combined use of validated sexual function questionnaires, hormonal measurements (particularly testosterone and DHEA), and Doppler ultrasonography of the clitoral artery to evaluate genital vascularization.

Another important consideration is the persistent social and cultural stigma surrounding female sexual arousal. Unlike men, who generally have a more direct and objective perception of their own sexual arousal, many women experience difficulty recognizing or identifying their state of arousal. Insufficient understanding of subjective arousal may therefore represent a confounding factor in studies investigating female sexuality. Consequently, differences in the perception of sexual arousal between men and women should be taken into account when interpreting research on sexual function.

Finally, few adverse events were reported across the included studies. Most were classified as mild and were primarily related to the gastrointestinal tract (e.g., nausea and abdominal cramps). However, the authors were unable to establish a definitive causal relationship between these events and the use of the herbal treatment. Overall, the individual conclusions of the included studies supported the use of *T. terrestris* as a safe and beneficial therapeutic option for the treatment of female sexual dysfunction across all reproductive stages of a woman's life (Table 9).

## Conclusion

Tribulus terrestris demonstrated greater effectiveness than placebo, particularly in the domains of satisfaction (FSFI), sexual desire and interest, arousal and partner-related harmony, comfort, and foreplay (SQ-F). In addition, some studies reported increases in dehydroepiandrosterone (DHEA), free testosterone, and bioavailable testosterone levels following treatment with the herbal preparation. These findings suggest that T. terrestris may have a beneficial effect on the treatment of female sexual dysfunction. However, the interpretation of its effectiveness in the present review was limited by the lack of assessment of subjective arousal parameters and by the heterogeneity among studies regarding methodology, study population, dosage regimen, treatment duration, and assessment instruments.

## References

ABDO, C. Elaboração e validação do quociente sexual, versão feminina: uma escala para avaliar a função sexual da mulher. *Revista Brasileira de Medicina,* v. 63, n. 9, p. 477–482, 2006. Disponível em: https://repositorio.usp.br/item/001549560. Acesso em: 15 jun. 2024.

ADAIKAN, P. G.; GAUTHAMAN, K.; PRASAD, R. N. V. History of herbal medicines with an insight on the pharmacological properties ofTribulus terrestris. *The Aging Male*, v. 4, n. 3, p. 163–169, jan. 2001. Disponível em: https://doi.org/10.1080/tam.4.3.163.169. Acesso em: 15 jun. 2024.

AKHTARI, E. *et al.* Tribulus terrestris for treatment of sexual dysfunction in women: randomized double-blind placebo - controlled study*. DARU Journal of Pharmaceutical Sciences*, v. 22, n. 1, 2014. Disponível em: http://dx.doi.org/10.1186/2008-2231-22-40. Acesso em: 15 jun. 2024.

ALVES, L. *et al. Saúde sexual da mulher:* como abordar a disfunção sexual feminina no consultório gine-

cológico Editores. [s.l: s.n.]. Disponível em: https://www.febrasgo.org.br/media/k2/attachments/Livro_saude_sexualZ-ZwebZ2.pdf. Acesso em: 15 jun. 2024.

BERMAN, L. *et al.* The Use of the Female Intervention Efficacy Index (FIEI) as an Immediate Outcome Measure of Medical Intervention to Treat Female Sexual Dysfunction. *Journal of Sex & Marital Therapy*, v. 27, n. 5, p. 427–433, 1 out. 2001. Disponível em: http://dx.doi.org/10.1080/713846821. Acesso em: 15 jun. 2024.

GAMA, C. R. *et al.* Clinical Assessment of Tribulus terrestris Extract in the Treatment of Female Sexual Dysfunction. *Clinical Medicine Insights. Women's Health*, v. 7, p. 45–50, 22 dez. 2014. Disponível em: https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4275110/. Acesso em: 15 jun. 2024.

GHANBARI, A. *et al.* Tribulus terrestris and female reproductive system health: A comprehensive review. *Phytomedicine*, v. 84, p. 153462, abr. 2021. Disponível em: http://dx.doi.org/10.1016/j.phymed.2021.153462. Acesso em: 15 jun. 2024.

HANDY, A. B.; FREIHART, B. K.; MESTON, C. M. The Relationship between Subjective and Physiological Sexual Arousal in Women with and without Arousal Concerns. *Journal of Sex & Marital Therapy*, v. 46, n. 5, p. 447–459, 4 maio 2020. Disponível em: http://dx.doi.org/10.1080/0092623x.2020.1758859. Acesso em: 15 jun. 2024.

HANDY, A. B.; STANTON, A. M.; MESTON, C. M. Understanding Women's Subjective Sexual Arousal Within the Laboratory: Definition, Measurement, and Manipulation. *Sexual Medicine Reviews,* v. 6, n. 2, p. 201–216, abr. 2018. Disponível em: http://dx.doi.org/10.1016/j.sxmr.2017.11.001. Acesso em: 15 jun. 2024.

*ICD-11 for Mortality and Morbidity Statistics.* Disponível em: https://icd.who.int/browse/2024-01/mms/en#160690465. Acesso em: 15 jun. 2024.

LIMA, S. M. R. R. *et al.* Disfunções sexuais femininas: questionários utilizados para avaliação inicial. *Arquivos Médicos dos Hospitais e da Faculdade de Ciências Médicas da Santa Casa de São Paulo,* p. 1–6, 2010. Disponível em: https://arquivosmedicos.fcmsantacasasp.edu.br/index.php/AMSCSP/article/view/303. Acesso em: 15 jun. 2024.

NEYCHEV, V.; MITEV, V. Pro-sexual and androgen enhancing effects of Tribulus terrestris L.: Fact or Fiction. *Journal of Ethnopharmacology,* v. 179, p. 345–355, fev. 2016. Disponível em: http://dx.doi.org/10.1016/j.jep.2015.12.055. Acesso em: 15 jun. 2024.

PARISH, S. J. *et al.* The International Society for the Study of Women's Sexual Health Process of Care for the Identification of Sexual Concerns and Problems in Women. *Mayo Clinic Proceedings*, v. 94, n. 5, p. 842–856, maio 2019. Disponível em: http://dx.doi.org/10.1016/j.mayocp.2019.01.009. Acesso em: 15 jun. 2024.

POSTIGO, S. *et al.* Assessment of the Effects of Tribulus Terrestris on Sexual Function of Menopausal Women. *Revista Brasileira De Ginecologia E Obstetricia: Revista Da Federacao Brasileira Das Sociedades De Ginecologia E Obstetricia,* v. 38, n. 3, p. 140–146, 1 mar. 2016. Disponível em: https://pubmed.ncbi.nlm.nih.gov/26902700/. Acesso em: 15 jun. 2024.

ROSEN, R. *et al.* The Female Sexual Function Index (FSFI): a multidimensional self-report instrument for the assessment of female sexual function. *Journal of sex & marital therapy, v*. 26, n. 2, p. 191–208, 2000. Disponível em: https://www.ncbi.nlm.nih.gov/pubmed/10782451/. Acesso em: 15 jun. 2024.

SHIFREN, J. L. *et al.* Sexual Problems and Distress in United States Women. *Obstetrics & Gynecology*, v. 112, n. 5, p. 970–978, nov. 2008. Disponível em: http://dx.doi.org/10.1097/aog.0b013e3181898cdb. Acesso em: 15 jun. 2024.

SOUZA, K. Z. D.; VALE, F. B. C.; GEBER, S. Efficacy of Tribulus terrestris for the treatment of hypoactive sexual desire disorder in postmenopausal women. *Menopause*, v. 23, n. 11, p. 1252–1256, nov. 2016. Disponível em: http://dx.doi.org/10.1097/gme.0000000000000766. Acesso em: 15 jun. 2024.
VALE, F. B. C. *et al.* Effect of Tribulus Terrestris in the Treatment of Female Sexual Dysfunction and

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

Clitoral Vascularization. Results of a Randomized Study Comparing Two Different Dosage Regimes. *Journal of Sex & Marital Therapy*, v. 47, n. 7, p. 696–706, 18 jun. 2021. Disponível em: http://dx.doi.org/10.1080/0092623x.2021.1938764. Acesso em: 15 jun. 2024.

VALE, F. B. C. *et al.* Efficacy of Tribulus Terrestris for the treatment of premenopausal women with hypoactive sexual desire disorder: a randomized double-blinded, placebo-controlled trial. *Gynecological Endocrinology:* The Official Journal of the International Society of Gynecological Endocrinology, v. 34, n. 5, p. 442–445, 27 novembro 2017. Disponível em: https://pubmed.ncbi.nlm.nih.gov/29172782/. Acesso em: 15 jun. 2024.

WEINBERGER, J. M. *et al.* Female Sexual Dysfunction: A Systematic Review of Outcomes Across Various Treatment Modalities. *Sexual Medicine Reviews*, fev. 2018. Disponível em: http://dx.doi.org/10.1016/j.sxmr.2017.12.004. Acesso em: 15 jun. 2024.

ZHU, W. *et al.* A review of traditional pharmacological uses, phytochemistry, and pharmacological activities of Tribulus terrestris. *Chemistry Central Journal*, v. 11, n. 1, 11 jul. 2017. Disponível em: http://dx.doi.org/10.1186/s13065-017-0289-x. Acesso em: 15 jun. 2024.

**Recebido em:** 27/11/2025
**Aprovado em:** 30/03/2026

DOI: https://doi.org/10.35919/rbsh.v37.1359

## APPENDICES

### APPENDIX A1 - *Female Sexual Function Index* (FSFI)

| Question | Response Options |
|---|---|
| Q1: Over the past 4 weeks, how **often** did you feel sexual desire or interest? | 5 = Almost always or always<br>4 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>2 = A few times (less than half the time)<br>1 = Almost never or never |
| Q2: Over the past 4 weeks, how would you rate your **level** (degree) of sexual desire or interest? | 5 = Very high<br>4 = High<br>3 = Moderate<br>2 = Low<br>1 = Very low or none at all |
| Q3. Over the past 4 weeks, how **often** did you feel sexually aroused ("turned on") during sexual activity or intercourse? | 0 = No sexual activity<br>5 = Almost always or always<br>4 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>2 = A few times (less than half the time)<br>1 = Almost never or never |
| Q4. Over the past 4 weeks, how would you rate your **level** of sexual arousal ("turn on") during sexual activity or intercourse? | 0 = No sexual activity<br>5 = Very high<br>4 = High<br>3 = Moderate<br>2 = Low<br>1 = Very low or none at all |
| Q5. Over the past 4 weeks, how **confident** were you about becoming sexually aroused during sexual activity or intercourse? | 0 = No sexual activity<br>5 = Very high confidence<br>4 = High confidence<br>3 = Moderate confidence<br>2 = Low confidence<br>1 = Very low or no confidence |
| Q6. Over the past 4 weeks, how **often** have you been satisfied with your arousal (excitement) during sexual activity or intercourse?<br>Response Options | 0 = No sexual activity<br>5 = Almost always or always<br>4 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>2 = A few times (less than half the time)<br>1 = Almost never or never |

**Source**: Rosen *et al.* (2000).

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

**APPENDIX A2** - *Female Sexual Function Index* (FSFI)

| | |
|---|---|
| Q7: Over the past 4 weeks, how **often** did you become lubricated ("wet") during sexual activity or intercourse? | 0 = No sexual activity<br>5 = Almost always or always<br>4 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>2 = A few times (less than half the time)<br>1 = Almost never or never |
| Q8. Over the past 4 weeks, how **difficult** was it to become lubricated ("wet") during sexual activity or intercourse? | 0 = No sexual activity<br>1 = Extremely difficult or impossible<br>2 = Very difficult<br>3 = Difficult<br>4 = Slightly difficult<br>5 = Not difficult |
| Q9: Over the past 4 weeks, how often did you **maintain** your lubrication ("wetness") until completion of sexual activity or intercourse? | 0 = No sexual activity<br>5 = Almost always or always<br>4 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>2 = A few times (less than half the time)<br>1 = Almost never or never |
| Q10: Over the past 4 weeks, how **difficult** was it to maintain your lubrication ("wetness") until completion of sexual activity or intercourse? | 0 = No sexual activity<br>1 = Extremely difficult or impossible<br>2 = Very difficult<br>3 = Difficult<br>4 = Slightly difficult<br>5 = Not difficult |
| Q11. Over the past 4 weeks, when you had sexual stimulation or intercourse, how **often** did you reach orgasm (climax)? | 0 = No sexual activity<br>5 = Almost always or always<br>4 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>2 = A few times (less than half the time)<br>1 = Almost never or never |
| Q12: Over the past 4 weeks, when you had sexual stimulation or intercourse, how **difficult** was it for you to reach orgasm (climax)? | 0 = No sexual activity<br>1 = Extremely difficult or impossible<br>2 = Very difficult<br>3 = Difficult<br>4 = Slightly difficult<br>5 = Not difficult |
| Q13: Over the past 4 weeks, how **satisfied** were you with your ability to reach orgasm (climax) during sexual activity or intercourse? | 0 = No sexual activity<br>5 = Very satisfied 4<br>4 = Moderately satisfied<br>3 = About equally satisfied and dissatisfied<br>2 = Moderately dissatisfied<br>1 = Very dissatisfied |
| Q14: Over the past 4 weeks, how **satisfied** have you been with the amount of emotional closeness during sexual activity between you and your partner? | 0 = No sexual activity<br>5 = Very satisfied<br>4 = Moderately satisfied<br>3 = About equally satisfied and dissatisfied<br>2 = Moderately dissatisfied<br>1 = Very dissatisfied |

**Source**: Rosen *et al.* (2000).

DOI: https://doi.org/10.35919/rbsh.v37.1359

**APPENDIX A3** - *Female Sexual Function Index* (FSFI)

| | |
|---|---|
| Q15: Over the past 4 weeks, how satisfied have you been with your sexual relationship with your partner? | 5 = Very satisfied<br>4 = Moderately satisfied<br>3 = About equally satisfied and dissatisfied<br>2 = Moderately dissatisfied<br>1 = Very dissatisfied |
| Q16: Over the past 4 weeks, how **satisfied** have you been with your overall sexual life? | 5 = Very satisfied<br>4 = Moderately satisfied<br>3 = About equally satisfied and dissatisfied<br>2 = Moderately dissatisfied<br>1 = Very dissatisfied |
| Q17: Over the past 4 weeks, how **often** did you experience discomfort or pain during vaginal penetration? | 0 = Did not attempt intercourse<br>I = Almost always or always<br>2 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>4 = A few times (less than half the time)<br>5 = Almost never or never |
| Q18: Over the past 4 weeks, how **often** did you experience discomfort or pain following vaginal penetration? | 0 = Did not attempt intercourse<br>1 = Almost always or always<br>2 = Most times (more than half the time)<br>3 = Sometimes (about half the time)<br>4 = A few times (less than half the time)<br>5 = Almost never or never |
| Q19. Over the past 4 weeks, how would you rate your **level** (degree) of discomfort or pain during or following vaginal penetration? | 0 = Did not attempt intercourse<br>1 = Very high<br>2 = High<br>3 = Moderate<br>4 = Low<br>5 = Very low or none at all |

**Source**: Rosen *et al.* (2000).

Revista Brasileira de
Sexualidade Humana ISSN 2675-1194
DOI: https://doi.org/10.35919/rbsh.v37.1359

## **APPENDIX B** - *Sexual Quotient Female Version* (SQ-F)

Responda esse questionário, com sinceridade, baseando-se nos últimos seis meses de sua vida sexual, considerando a seguinte pontuação:
0 = nunca
1 = raramente
2 = às vezes
3 = aproximadamente 50% das vezes
4 = a maioria das vezes
5 = sempre

1. Você costuma pensar espontaneamente em sexo, lembra de sexo ou se imagina fazendo sexo?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

2. O seu interesse por sexo é suficiente para você participar da relação sexual com vontade?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

3. As preliminares (carícias, beijos, abraços, afagos etc.) a estimulam a continuar a relação sexual?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

4. Você costuma ficar lubrificada (molhada) durante a relação sexual?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

5. Durante a relação sexual, à medida que a excitação do seu parceiro vai aumentando, você também se sente mais estimulada para o sexo?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

6. Durante a relação sexual, você relaxa a vagina o suficiente para facilitar a penetração do pênis?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

7. Você costuma sentir dor durante a relação sexual, quando o pênis penetra em sua vagina?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

8. Você consegue se envolver, sem se distrair (sem perder a concentração), durante a relação sexual?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

9. Você consegue atingir o orgasmo (prazer máximo) nas relações sexuais que realiza?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

10. O grau de satisfação que você consegue com a relação sexual lhe dá vontade de fazer sexo outras vezes, em outros dias?
( ) 0 ( ) 1 ( ) 2 ( ) 3 ( ) 4 ( ) 5

Resultado = padrão de desempenho sexual:
82-100 pontos: *bom a excelente*
62–80 pontos: *regular a bom*
42-60 pontos: *desfavorável a regular*
22-40 pontos: *ruim a desfavorável*
0-20 pontos: *nulo a ruim*

Como somar os pontos:
$2 \times (Q_1 + Q_2 + Q_3 + Q_4 + Q_5 + Q_6 + [5\text{-}Q_7] + Q_8 + Q_9 + Q_{10})$
(Q = questão)

**Source**: Abdo (2006).

DOI: https://doi.org/10.35919/rbsh.v37.1359

## **APPENDIX** - Female Intervention Effectiveness Index (FIEI)

1. After taking the pill, my vaginal lubrication during intercourse and/or other sexual stimulation (e.g. foreplay) was
   a. more than it had been before taking the pill
   b. less than it had been before taking the pill
   c. same as before; no more or less
   d. could not tell a difference
   e. I could not tell a difference, but my partner noticed an increase

2. After taking the pill, the sensation/feeling in my genital (vagina, labia, clitoris) area during intercourse or other sexual stimulation (e.g. foreplay) seemed to be
   a. more than before
   b. less than before
   c. unchanged

3. If you perceived a change in sensation in your genital area, was it
   a. pleasant and satisfying
   b. unpleasant/disturbing
   c. neither pleasant or unpleasant
   d. other, please describe_____ _

4. After taking the pill, intercourse and/or other sexual stimulation (e.g. foreplay) was
   a. pleasant and satisfying: better than before taking the pill
   b. unpleasant; worse than before the pill
   c. unchanged; no difference
   d. pleasant; but still not like it used to be or I would like it to be

5. After taking the pill, my ability to have an orgasm was
   a. increased; easier to have an orgasm
   b. decreased; more difficult to have an orgasm
   c. unchanged

6. Did you experience any of the following side effects after taking the pill (circle all that apply and please state any other negative side-effects if any)?
   a. nausea
   b. diarrhea
   c. lightheadedness
   d. dizziness
   e. headache
   f. facial flushing
   g. nasal congestion
   h. abdominal pain or cramping
   i. visual changes
   j. nervousness; agitation
   k. other_____ ___

7. Overall, I feel that the pills
   a. improved my sexual experience, and I would like to continue taking them
   b. did not change my sexual experience, but I would like to continue taking them
   c. did not change my sexual experience and I don't want to continue taking them
   d. worsened my sexual experience and I don't want to continue taking them

**Source**: Berman *et al.* (2001).