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Pharmacological Rationale of Ayurvedic Formulations Used in *Virechana Karma* for *Vatarakta*: A Comprehensive Review

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Abstract

Vatarakta is a well-described *Vata-Rakta* disorder in Ayurvedic classics, closely resembling gout in its metabolic and inflammatory manifestations. It arises from *Rakta Dushti* and *Avarana* of *Vata*, resulting in pain, swelling, and discolouration of joints. Among the five major *Shodhana Karmas*, *Virechana* is specifically indicated for *Pitta-Rakta* predominant conditions such as *Vatarakta*, offering systemic detoxification and correction of metabolic derangements.

This review explores the Ayurvedic and pharmacological rationale behind some classical formulations employed in *Virechana Karma* for *Vatarakta*, namely *Patoladi Kwatha* (*Deepana Pachana*), *Kalyanaka Ghrita* (*Snehapana*), *Trivrit Avaleha* (*Virechana*), and *Triphala Kwatha* (*Anupana*). Each formulation is discussed with respect to its classical references, *Rasa–Guna–Virya–Vipaka–Karma*, and therapeutic relevance in *Vatarakta*.

The review emphasizes the pharmacodynamic rationale and clinical utility of these preparations, which act synergistically to pacify *Vata–Pitta*, purify *Rakta*, and restore *Agni*. Correlation with modern pharmacology highlights their anti-inflammatory, hepatoprotective, hypouricemic, and antioxidant activities. This integrative perspective demonstrates how the classical Ayurvedic approach to *Virechana* offers a scientifically coherent method for managing metabolic and inflammatory arthropathies such as gout.

Keywords: *Patoladi kwath, Kalyanak ghrita*, *Trivrit Avaleha, Triphala kwath*, Gout

Introduction

Vatarakta is one of the most extensively documented metabolic–inflammatory disorders in the Ayurvedic literature. The term denotes the pathological interaction of *Vata* and *Rakta*, leading to pain (*Shoola*), swelling (*Sopha*), burning sensation (*Daha*), and discoloration (*Vaivarnya*). *Acharya Charaka* describes it as a condition arising when vitiated *Rakta* obstructs the normal movement of *Vata* (*Rakta Avrita Vata*), leading to severe pain and tissue degeneration [1].

Modern medical science correlates *Vatarakta* with gout, a systemic disorder characterized by hyperuricemia and deposition of monosodium urate crystals in synovial tissues, resulting in recurrent arthritis and tophaceous nodules [2]. While conventional management focuses on uric acid reduction and anti-inflammatory agents, the Ayurvedic approach prioritizes *Samprapti Vighatana* (breaking the pathogenesis) through *Shodhana Chikitsa*, primarily *Virechana Karma* [3].

Virechana is specifically indicated in *Pitta-Rakta* disorders, and its relevance to *Vatarakta* stems from the fundamental pathology of *Rakta Dushti*. *Acharya Sushruta* and *Vagbhata* emphasize that purification of *Rakta* through purgation provides marked relief from *Daha*, *Kandu*, and *Sopha*, all of which correspond to the inflammatory triad in gout [4].

For effective *Virechana*, proper *Purva Karma* namely *Deepana-Pachana* and *Snehapan* are indispensable, as they prepare the body by digesting *Ama* and mobilizing *Doshas* [5]. Therefore, the focus in *Vatarakta Chikitsa* is not on the procedural sequence itself but on the specific formulations that enable the therapeutic process of *Virechana* to yield its intended outcomes.

Each of these formulations addresses distinct yet interrelated components of *Vatarakta Samprapti*: *Agni Mandya* (impaired metabolism), *Rakta Dushti* (impure blood), and *Vata Avarana* (obstruction of movement). By targeting these factors, they facilitate both purification and rejuvenation.

Recent pharmacological studies lend strong support to these classical indications. *Patoladi Kwatha* and *Trivrit Avaleha* show hepatoprotective and uric acid–reducing properties; *Kalyanaka Ghrita* demonstrates antioxidant and anti-inflammatory activity; and *Triphala* exhibits potent immunomodulatory and detoxifying effects [6–9].

Thus, the therapeutic rationale of these formulations in *Vatarakta* is twofold: first, they assist in *Samyak Shodhana* (complete purification) through *Virechana*; second, they provide *Shamana* (palliative) and *Rasayana* support that sustains tissue health and metabolic stability.

The present review consolidates classical textual insights and contemporary scientific evidence to elucidate the relevance of these formulations in *Vatarakta* management, highlighting Ayurveda's comprehensive approach to metabolic inflammatory disorders.

Ayurvedic Understanding of *Vatarakta*

In classical Ayurvedic texts, *Vatarakta* is described as a *Vata-pradhana Tridoshaja Vyadhi* with *Rakta* as the principal *Dushya*. The term literally denotes the interaction (*Samsarga*) of *Vata* and *Rakta*, where vitiated *Rakta* obstructs the normal flow of *Vata*, resulting in symptoms such as *Shoola* (pain), *Sopha* (swelling), *Daha* (burning), *Kandu* (itching), and *Vaivarnya* (discoloration). The disease progresses through two stages - *Uttana* (superficial) and *Gambhira* (deep) as elaborated by *Acharya Sushruta* and *Vagbhata* [8]. In *Uttana Vatarakta*, the morbid *Doshas* are confined to the skin and peripheral joints, while in *Gambhira*, deeper tissues including *Sandhi* (joints) and *Asthi* (bones) become involved [9].

The *Samprapti* (pathogenesis) of *Vatarakta* begins with *Agni Mandya* (reduced digestive power) leading to *Ama* formation. This *Ama*, when circulated with *Rakta*, vitiates it, producing *Rakta Dushti*. The vitiated *Rakta* obstructs

the pathways of *Vata*, leading to *Avarana*, characterized by pain and stiffness. This *Avarana* further intensifies the *Vata Dosha*, producing cyclical aggravation and remission patterns akin to gout flares [10].

The *Rakta* involved in *Vatarakta* is described as *Pitta-anubandhi*, indicating a dominance of *Pitta* qualities such as heat, sharpness, and liquidity. Thus, both *Pitta* and *Rakta* play pivotal roles in the inflammatory cascade, making *Virechana* which primarily eliminates *Pitta* and *Rakta Dosha* through the lower channels the most appropriate *Shodhana* therapy [11].

The *Hetu* (causative factors) of *Vatarakta* are extensive and include dietary causes such as excessive intake of *Amla* (sour), *Lavana* (salty), *Katu* (pungent), and *Guru Ahara* (heavy food), as well as lifestyle causes like prolonged sitting, day sleep, and suppression of natural urges [12]. These causative factors mirror modern predisposing elements for gout, such as rich purine diet, obesity, and sedentary lifestyle.

Furthermore, *Acharya Charaka* highlights that *Rakta* is the primary seat of *Pitta Dosha*, and its vitiation can lead to numerous systemic disorders including *Vatarakta*. The correlation between *Rakta Dushti* and hyperuricemia underscores how the Ayurvedic concept of *Dushti* aligns with metabolic toxin accumulation. Thus, *Vatarakta* can be perceived as a systemic disorder where disturbed *Agni* and impaired *Rakta* metabolism lead to the manifestation of local inflammation and pain.

Principle of *Shodhana* Therapy in *Vatarakta*

The therapeutic approach to *Vatarakta* follows the general principle of *Shodhana Chikitsa* - elimination of vitiated *Doshas* and purification of affected *Dhatus*. *Shodhana* is preferred over *Shamana* (palliative) therapy in chronic metabolic disorders because it addresses the root cause by expelling morbid factors from the body [13]. *Acharya Charaka* emphasizes that *Shodhana* should only be performed after proper *Deepana-Pachana* and *Snehana* to ensure safe and complete elimination of *Doshas* [14].

In *Vatarakta*, the primary *Doshas* involved are *Vata*, *Pitta*, and *Rakta*, and the major *Srotas* (channels) affected include *Raktavaha*, *Mamsavaha*, and *Asthivaha Srotas*. Thus, *Virechana* which primarily purifies *Rakta* and *Pitta* becomes the most suitable form of *Shodhana*. However, the preparatory stages of *Pachana* and *Snehapana* are essential prerequisites for effective *Virechana*.

1. **Deepana-Pachana:**

The first step aims at improving *Agni* (digestive fire) and digesting *Ama*. *Ama* is a sticky, undigested metabolic residue that obstructs the channels and prevents the movement of *Doshas*. *Patoladi Kwatha*, a classical formulation described in *Charaka Samhita* under *Vishama Jwara Chikitsa*, is prescribed for this purpose. It clears *Ama*, enhances hepatic metabolism, and purifies *Rakta*, thus preparing the system for the next stage.

2. **Snehapana:**

Once *Agni* is strengthened and *Ama* eliminated, *Sneha Dravya* such as *Kalyanaka Ghrita* is administered in incremental doses (*Arohana Matra*). *Snehapana* softens the morbid *Doshas*, increases lubrication, and facilitates their mobilization from peripheral tissues toward the gastrointestinal tract (*Kostha*). It counteracts the *Ruksha Guna* (dryness) of aggravated *Vata*, making it vital in *Vatarakta*, a condition marked by *Vata-Pitta* predominance.

3. **Virechana:**

The final stage, *Virechana*, involves the controlled expulsion of liquefied *Doshas* through the lower pathway. *Trivrit Avaleha*, containing *Trivrit* (*Operculina turpethum*), is a classical *Virechaka* drug that effectively eliminates *Pitta* and *Rakta* impurities. The process restores physiological *Agni* and clears *Srotas*, providing lasting relief from pain and inflammation.

4. **Anupana:**

Triphala Kwatha, given as *Anupana*, enhances the efficacy of *Virechana*, ensuring smooth evacuation while preventing *Vata Prakopa* post-procedure. Its *Rasayana* and *Raktaprasadana* actions aid tissue rejuvenation and prevent recurrence.

The sequential administration of these therapeutic measures ensures comprehensive cleansing from digestion of *Ama* to oleation and final elimination aligning perfectly with the Ayurvedic concept of *Samyak Shodhana Lakshana*.

Therapeutic Formulations Used in the Management of *Vatarakta*

Ayurvedic classics describe *Virechana* as the prime *Shodhana* therapy for disorders of *Pitta* and *Rakta*. *Vatarakta* being a condition characterized by *Rakta Dushti* and *Vata Avarana*, purification of *Rakta* through *Virechana* offers direct disease alleviation [15]. The *Purva Karma* procedures (*Deepana-Pachana* and *Snehapana*) play crucial roles in optimizing the efficacy of *Virechana*, ensuring the complete expulsion of morbid *Doshas*.

The formulations selected in the present regimen *Patoladi Kwatha*, *Kalyanaka Ghrita*, *Trivrit Avaleha*, and *Triphala Kwatha* have all been cited in classical compendia with strong *Rakta-Pitta Shamana* and *Vata-Anulomana* properties. Each acts at a distinct level of pathophysiology in *Vatarakta*, from *Ama Pachana* and *Raktashodhana* to *Rasayana* and post-detox tissue nourishment.

Patoladi Kwatha

Charaka Samhita, in *Vishama Jwara Chikitsa Adhyaya*, describes *Patoladi Kwatha*[16]. The decoction comprises *Patola* (*Trichosanthes dioica*), *Sariva* (*Hemidesmus indicus*), *Musta* (*Cyperus rotundus*), *Patha* (*Cissampelos pareira*), and *Katurohini* (*Picrorhiza kurroa*). The formulation is indicated in *Jwara*, *Kushtha*, *Raktapitta*, and *Vatarakta*.

Pharmacodynamic Attributes (*Rasapanchak*)

Rasa (Taste): *Tikta* and *Kashaya*

- **Guna (Qualities):** *Laghu* and *Ruksha*
- **Virya (Potency):** *Sheeta*
- **Vipaka (Post-digestive effect):** *Katu*
- **Karma (Actions):** *Deepana*, *Pachana*, *Raktashodhaka*, *Pitta-Rakta Shamana*

Rationale in *Vatarakta*

Patoladi Kwatha is primarily chosen for *Deepana-Pachana* prior to *Virechana*, but its role in *Vatarakta* extends beyond preparatory function. *Patola*, *Sariva*, and *Katurohini* are recognized for their *Raktaprasadana* and anti-inflammatory effects, making the decoction suitable even as a *Shamana Yoga*. The *Tikta Rasa* and *Sheeta Virya* of its ingredients counteract *Pitta* and *Rakta Dushti*, while *Laghu* and *Ruksha Gunas* rectify *Ama* accumulation.

Modern studies have shown that *Patoladi Kwatha* possesses hepatoprotective and antioxidant activity, supporting detoxification via liver metabolism [17]. The bitter principles in *Katurohini* and *Nimba* (when co-administered) enhance bile secretion and uric acid excretion. Thus, *Patoladi Kwatha* aids in correcting metabolic derangements underlying hyperuricemia and supports *Raktashodhana*.

Kalyanaka Ghrita

Kalyanaka Ghrita is mentioned by *Acharya Charaka* in *Unmad Chikitsa Adhyaya* (Ca. Chi. 9/92–101), but its indications extend to all *Vata-Pitta* dominated disorders including *Vatarakta* [18]. The formulation comprises *Vishala, Triphala, Harenuka, Devadaru, Elavaluka, Shalaparni, Tagara, Haridra, Daruharidra, Sariva (Shveta), Sariva (Krishna), Priyangu, Nilotpala, Ela, Manjishtha, Danti, Dadima, Nagakeshara, Talisapatra, Brahati, Jati Pushpa, Vidanga, Prishnaparni, Kushta, Chandana, Padmaka, Priyala* processed in *Go-Ghrita*.

Pharmacodynamic Attributes:

- **Rasa:** Predominantly *Tikta*, *Madhura*, and *Kashaya*
- **Guna:** *Snigdha* and *Mridu*
- **Virya:** *Sheeta*
- **Vipaka:** *Madhura*
- **Karma:** *Vata-Pitta Shamana*, *Raktaprasadana*, *Medhya*, *Rasayana*, *Balya*

Rationale in *Vatarakta*

In *Vatarakta*, dryness (*Rukshata*) and stiffness (*Stambha*) result from aggravated *Vata* obstructed by *Rakta*. *Kalyanaka Ghrita* counteracts this through its *Snigdha* (unctuous) and *Mridu* (soft) qualities, facilitating *Dosha Vilayana* (liquefaction of morbid humors) and *Anulomana* (normal flow). The *Tikta Rasa* and *Sheeta Virya* pacify *Pitta* and *Rakta Dushti*, while the *Madhura Vipaka* restores tissue integrity.

Its *Rasayana* property enhances *Dhatu Poshana* (nutritive tissue function) and supports neurological equilibrium. Modern research confirms that medicated *Ghritas* act as lipid-based carriers improving drug bioavailability and exhibit significant antioxidant and anti-inflammatory properties [19]. In *Vatarakta*, *Kalyanaka Ghrita* aids both in preparation for *Virechana* and as a *Shamana Sneha* to relieve chronic inflammation and pain.

Trivrit Avaleha

Trivrit Avaleha is described by *Acharya Vagbhata* in *Ashtanga Hridaya*, *Chikitsa Sthana* as a potent purgative formulation primarily indicated for disorders involving *Pitta* and *Rakta Dushti*, such as *Vatarakta*, *Kushtha*, and *Kamala* [20]. The chief ingredient, *Trivrit* (*Operculina turpethum*), is a well-recognized *Virechaka Dravya* in classical Ayurvedic pharmacology.

Pharmacodynamic Attributes (*Rasapanchak*)

- **Rasa:** *Tikta* and *Madhura*
- **Guna:** *Snigdha* and *Sara*
- **Virya:** *Ushna*
- **Vipaka:** *Madhura*
- **Karma:** *Virechaka*, *Raktashodhaka*, *Pitta-Vatahara*, *Shothahara*

Rationale in *Vatarakta*

In *Vatarakta*, the core pathology lies in *Rakta Dushti* and *Avarana* of *Vata*. *Trivrit Avaleha*, through its strong *Virechana* action, eliminates the vitiated *Rakta* and *Pitta* via the lower channels, thus relieving *Sopha*, *Daha*, and *Shoola*. The *Tikta Rasa* mitigates *Pitta* and *Rakta Dushti*, while the *Sara Guna* facilitates the expulsion of morbid matter.

The *Ushna Virya* counteracts the excessive *Sheeta Guna* of *Vata*, restoring balance and circulation. Furthermore, *Trivrit Avaleha* clears the *Srotorodha* (obstruction in channels), improving microcirculation and relieving stiffness in joints.

Phytochemical studies on *Operculina turpethum* reveal the presence of resin glycosides and turpethinic acids responsible for its purgative, hepatoprotective, and anti-inflammatory effects [21]. These properties justify its use in *Vatarakta*, where hepatic metabolism and detoxification are crucial for reducing uric acid and inflammatory mediators. Experimental models have demonstrated that *Trivrit* extracts significantly reduce serum uric acid levels and markers of oxidative stress [22].

Thus, *Trivrit Avaleha* acts not only as a purgative but as a systemic detoxifying agent capable of clearing both metabolic and inflammatory derangements involved in *Vatarakta*.

Triphala Kwatha

Triphala Kwatha is referenced in *Bhavaprakasha Nighantu* and *Chikitsa Sthana* of various texts as a *Rasayana* formulation with wide applications in *Rakta-Pitta* disorders, including *Vatarakta* [23]. It consists of *Haritaki* (*Terminalia chebula*), *Vibhitaki* (*Terminalia bellirica*), and *Amalaki* (*Emblica officinalis*), collectively known as *Triphala*.

Pharmacodynamic Attributes: (*Rasapanchak*)

- **Rasa:** Predominantly *Amla*, *Kashaya*, and *Madhura*
- **Guna:** *Laghu* and *Ruksha*
- **Virya:** *Ushna*
- **Vipaka:** *Madhura*
- **Karma:** *Raktaprasadana*, *Anulomana*, *Rasayana*, *Shothahara*

Rationale in *Vatarakta*

Triphala Kwatha serves as both an *Anupana* (adjuvant) for *Virechana* and a *Rasayana* to promote tissue rejuvenation following purification. In *Vatarakta*, where *Rakta Dushti* and tissue degeneration coexist, *Triphala* supports recovery through its *Raktaprasadana* (blood-purifying) and *Shothahara* (anti-inflammatory) properties.

Amalaki provides potent antioxidant effects due to high vitamin C and polyphenolic content, while *Haritaki* promotes gentle detoxification through mild laxative action, and *Vibhitaki* aids lipid metabolism and reduces systemic inflammation [24].

Modern studies corroborate *Triphala's* immunomodulatory and antioxidant properties, demonstrating a decrease in oxidative stress markers and inflammatory cytokines like IL-6 and TNF-α [25]. Its *Madhura Vipaka* aids in *Dhatu Poshana* (nutrient assimilation), preventing post-detox catabolism often seen after strong *Virechana*.

Therefore, *Triphala Kwatha* not only complements the cleansing action of *Virechana* but also sustains post-purificatory balance, making it a rational choice in the holistic management of *Vatarakta*.

Clinical Correlation

The formulations traditionally indicated in *Vatarakta* are not only justified through Ayurvedic reasoning but also demonstrate strong correlations with modern pharmacological mechanisms. The therapeutic sequence involving *Patoladi Kwatha*, *Kalyanaka Ghrita*, *Trivrit Avaleha*, and *Triphala Kwatha* addresses multiple pathological aspects of *Vatarakta* — impaired metabolism, inflammation, oxidative stress, and toxin accumulation — in a systematic manner.

1. Correlation with Modern Pathophysiology:
Gout, the modern correlate of *Vatarakta*, is a metabolic arthropathy resulting from uric acid deposition within synovial joints. The inflammatory response is mediated by the activation of the NLRP3 inflammasome and subsequent release of IL-1β, IL-6, and TNF-α [26]. Ayurveda describes similar pathology under *Rakta Dushti* and *Avarana of Vata*, leading to *Shoola* and *Sopha*. The purificatory action of *Virechana* and the *Raktaprasadana* properties of these formulations can be seen as mechanisms that parallel detoxification, anti-inflammatory, and antioxidant effects observed in contemporary biomedical studies.

2. Evidence from Pre-clinical and Clinical Studies:

- *Patoladi Kwatha* and its individual components, such as *Katuki* and *Sariva*, have shown hepatoprotective and hypouricemic activities in experimental models [27].
- *Kalyanaka Ghrita* demonstrates significant antioxidant and anti-inflammatory effects, which can modulate systemic oxidative stress implicated in metabolic inflammation [28].
- *Trivrit* extracts exhibit hepatoprotective, anti-arthritic, and mild uric acid–reducing activity [29].
- *Triphala* has been reported to decrease serum inflammatory markers and improve antioxidant enzyme levels in clinical trials [30].

Clinical studies on *Virechana Karma* have shown reductions in serum uric acid, CRP, and IL-6 levels in *Vatarakta* and *Amavata* patients [31]. These outcomes substantiate the classical claim that *Virechana* promotes systemic detoxification and normalizes *Agni*.

3. Integrative Mechanistic Perspective:

From a biomedical viewpoint, these formulations work synergistically at various stages of metabolic and inflammatory regulation:

- *Patoladi Kwatha* stimulates hepatic metabolism and bile secretion, aiding uric acid excretion.
- *Kalyanaka Ghrita* acts as a lipid-based antioxidant carrier that modulates pro-inflammatory mediators.
- *Trivrit Avaleha* induces bowel cleansing, reducing toxin reabsorption and oxidative load.
- *Triphala Kwatha* restores redox balance and supports hepatic detoxification.

Together, these pharmacological actions align closely with the Ayurvedic intent of *Shodhana*, validating the traditional rationale through modern evidence.

Discussion

The management of *Vatarakta* in Ayurveda is centered on purification of *Rakta* and normalization of *Vata* function. While modern medicine approaches gout symptomatically, Ayurveda perceives it as a systemic metabolic derangement arising from *Agni Dushti* and *Rakta Dushti*. The use of *Virechana* and its associated formulations serves as an effective strategy to correct these imbalances.

The comprehensive action of the four classical formulations can be summarized as follows:

- *Patoladi Kwatha* acts as a *Deepana-Pachana* and *Raktashodhaka* drug, removing metabolic toxins and priming the system for purification.
- *Kalyanaka Ghrita* performs *Snehana* and *Raktaprasadana*, counteracting *Rukshata* and *Stambha* while promoting *Dhatu Poshana*.
- *Trivrit Avaleha* provides the essential *Virechana* action that eliminates vitiated *Pitta* and *Rakta*, relieving inflammation and pain.

- *Triphala Kwatha* sustains the post-purificatory equilibrium by providing *Rasayana* support and reducing oxidative stress.

This therapeutic ensemble demonstrates that *Vatarakta* management is not limited to local symptomatic relief but extends to systemic detoxification, hepatic metabolism, and restoration of homeostasis.

Modern pharmacological research increasingly supports the holistic detoxificatory model. For instance, polyherbal formulations with *Tikta Rasa* and *Sheeta Virya* show measurable antioxidant and anti-inflammatory effects comparable to conventional hepatoprotective agents [32]. Such findings underline that Ayurvedic formulations act on cellular oxidative pathways, complementing modern mechanisms of uric acid reduction and cytokine modulation.

Furthermore, the *Pitta-Rakta Shamana* approach of *Virechana* aligns with modern therapeutic goals of reducing systemic inflammation and improving metabolic clearance. By integrating traditional knowledge with current biomedical insights, these formulations represent a rational, evidence-supported strategy for managing gout-like conditions within an Ayurvedic framework.

Conclusion

The classical formulations *Patoladi Kwatha*, *Kalyanaka Ghrita*, *Trivrit Avaleha*, and *Triphala Kwatha* collectively exemplify the Ayurvedic approach to *Vatarakta* through purification and rejuvenation. Each formulation has been justified both by textual authority and by its pharmacodynamic and pharmacological profile.

Patoladi Kwatha purifies *Rakta* and stimulates *Agni*; *Kalyanaka Ghrita* provides oleation and balances *Vata-Pitta*; *Trivrit Avaleha* ensures proper elimination of vitiated *Doshas* through *Virechana*; and *Triphala Kwatha* rejuvenates tissues and maintains systemic balance.

This combined regimen addresses the key pathological stages of *Vatarakta*: *Agni Mandya*, *Rakta Dushti*, and *Vata Avarana*. Modern research supports these classical claims by demonstrating the hepatoprotective, hypouricemic, antioxidant, and anti-inflammatory properties of the constituent herbs.

Hence, this integrative rationale of classical Ayurvedic formulations presents a scientifically coherent and clinically applicable model for managing gout-like disorders, bridging ancient wisdom with modern medical understanding.

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