

## “A Comparative Clinical Study To Evaluate The Efficacy Of Darvyadi Churna Lepa And Khadiradi Vati In The Management Of Mukhapaka In Children”

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### ABSTRACT

In Ayurveda, Mukhapaka is described as an inflammatory condition of the oral cavity and is often compared with stomatitis in modern medicine. It is mainly considered a Pitta-predominant disorder involving of Rakta Dhatu, which results in symptoms such as burning sensation, pain, ulcer formation, itching, and irritation of the buccal mucosa. This condition is commonly seen in children and can significantly affect their food intake, speech, and overall well-being. Therefore, the present study was undertaken to evaluate and compare the clinical efficacy of Darvyadi Churna Lepa and Khadiradi Vati in the management of Mukhapaka in children. An open-label, randomised, double-arm clinical study was conducted on 40 pediatric patients aged 3–12 years who were clinically diagnosed with Mukhapaka. The patients were randomly divided into two equal groups of 20 each. Group A was treated with Darvyadi Churna Lepa for local application, while Group B was treated with Khadiradi Vati. The improvement was assessed based on clinical parameters such as pain, burning sensation, itching, and the number of eruptions before and after treatment. The results showed that both groups experienced statistically significant improvements in Mukhapaka symptoms. In Group A, burning sensation showed a highly significant improvement, with a maximum relief of 90%, while pain, itching, and the number of eruptions also improved significantly. In Group B, burning sensation and itching showed highly significant improvement, with maximum relief observed in itching (87.50%). However, inter-group comparison showed no statistically significant difference, indicating that both treatments were equally effective in the management of Mukhapaka in children

**KEYWORDS:** Mukhapaka, Stomatitis, Khadiradi Vati, Darvyadi Churna Lepa

### INTRODUCTION

In Ayurveda, a condition comparable to stomatitis is described as Mukhapaka, classified under Mukharoga. Classical Ayurvedic texts define Mukhapaka as an inflammatory disorder of the oral mucosa, predominantly involving Pitta with the participation of Rakta Dhatu. Aggravation of Pitta may occur due to dietary indiscretions, excessive consumption of hot and spicy foods, irregular lifestyle patterns, and environmental factors. When vitiated Pitta interacts with Rakta, it produces

inflammatory changes in the oral tissues, leading to symptoms such as redness, burning sensation, ulcer formation, pain, and localised heat.

Acharya Charaka describes Mukhapaka under Pittaja Nanatmaja Vikara, emphasising that the disorder primarily arises from Pitta Dosha aggravation<sup>2</sup>. Classical manifestations include inflammation, burning sensation, and ulceration of the oral mucosa. Similarly, Acharya Sushruta explains that Mukhapaka may involve Vata, Kapha, and Rakta, but highlights the dominant role of Pitta in causing tissue damage and inflammatory changes. He further categorises it into Vataja, Pittaja, and Kaphaja types, with Pittaja being most commonly observed in inflammatory oral conditions<sup>3</sup>

The prevalence of oral ulcers in children is reported to be around 9%, with nearly 25% of the global population experiencing oral ulceration at some stage<sup>4</sup>. While conventional treatment focuses on symptomatic relief through topical analgesics and anti-inflammatory or antimicrobial agents, Ayurvedic therapy aims to correct the underlying *Dosha* imbalance and enhance natural healing.

*Darvyadi Churna Lepa* is described in *Bhaisajya-Ratnavali* under *Balaroga Adhikara*, emphasising its significance in addressing oral disorders in children<sup>5</sup>. Similarly, *Khadiradi Vati* is recommended in *Mukharoga Adhikara* for conditions affecting the mouth, teeth, lips, tongue, and palate, showcasing its versatile role in the management of diverse oral pathologies<sup>6</sup>. *Darvyadi Churna Lepa* and *Khadiradi Vati* have demonstrated anti-inflammatory, antimicrobial, and wound-healing properties. Both are traditionally recommended for managing *Mukhapaka* and alleviating symptoms such as burning sensation, pain, and ulceration. Considering the clinical importance of safe and effective therapies for children, the present study was undertaken to evaluate and compare the efficacy of *Darvyadi Churna Lepa* and *Khadiradi Vati* in the management of *Mukhapaka* in pediatric patients.

**AIM AND OBJECTIVES:** The study aimed to compare the effectiveness of *Darvyadi Churna Lepa* and *Khadiradi Vati* in managing *Mukhapaka* (stomatitis) in children and to evaluate their therapeutic benefits.

**MATERIALS AND METHODS:** An open-label, randomised, double-arm study was conducted on 40 children aged 3–12 years at the Department of Kaumarabhritya, Shri Khudadad Dungaji Government Ayurvedic Hospital, Raipur.

**INCLUSION CRITERIA:** Children aged 3–12 years presenting with classical features of *Mukhapaka* were included in the study, irrespective of gender, religion, or socioeconomic background.

**EXCLUSION CRITERIA:** Children with serious systemic illnesses, chronic non-healing oral ulcers, malignancies, infectious conditions such as syphilis, or those outside the 3–12-year age range were excluded to ensure a uniform pediatric study population.

**ASSESSMENT CRITERIA:** The assessment criteria were based on the evaluation of clinical symptoms, including pain, burning sensation, itching, and the number of eruptions<sup>7</sup>.

**TABLE NO. 1 - MATERIAL OF DARVYADI CHURNA LEPA**

Sr.No.	DRUG	BOTANICAL NAME	PART USE	RATION	QUANTITY
1.	<i>Daruharidra</i> <sup>8</sup>	Berberis aristata DC.	Root, Stem	1part	1kg
2.	<i>Mulethi</i> <sup>9</sup>	Glycyrrhiza glabra L.	Root	1part	1kg
3.	<i>Haritaki</i> <sup>10</sup>	Terminalia chebula Retz	Fruit	1part	1kg
4.	<i>Jati</i> <sup>11</sup>	Jasminum officinale L.	Patra	1part	1kg

#### PREPARATION OF DARVYADI CHURNA LEPA<sup>12</sup>

*Daruharidra*, *Mulethi*, *Haritaki*, and *Jati* were cleaned, shade-dried, powdered to *Yavakuta*, further ground to fine *churna*, mixed equally, and stored in a clean, dry, airtight *kumbha* for preservation.

**TABLE NO. 2 - MATERIAL OF KHADIRADI VATI**

Sr.No.	DRUG	BOTANICAL NAME	PART USE	QUANTITY
1.	<i>Khadira</i> <sup>13</sup>	Acacia catechu L.f.	Wood and Bark	7kg

2.	<i>Javitri</i> <sup>14</sup>	Myristica fragrans Houtt.	Fruit covering	100gm
3.	<i>Karpura</i> <sup>15</sup>	Cinnamomum camphor L.J	Root	100gm
4.	<i>Sitalcini</i> <sup>16</sup>	Piper cubeba L.f	Fruit	100gm
5.	<i>Puga</i> <sup>17</sup>	Areca catechu Linn.	Fruit	100gm
6.	<i>Jatiphal</i> <sup>18</sup>	Myristica fragrans Houtt.	Fruit	100gm

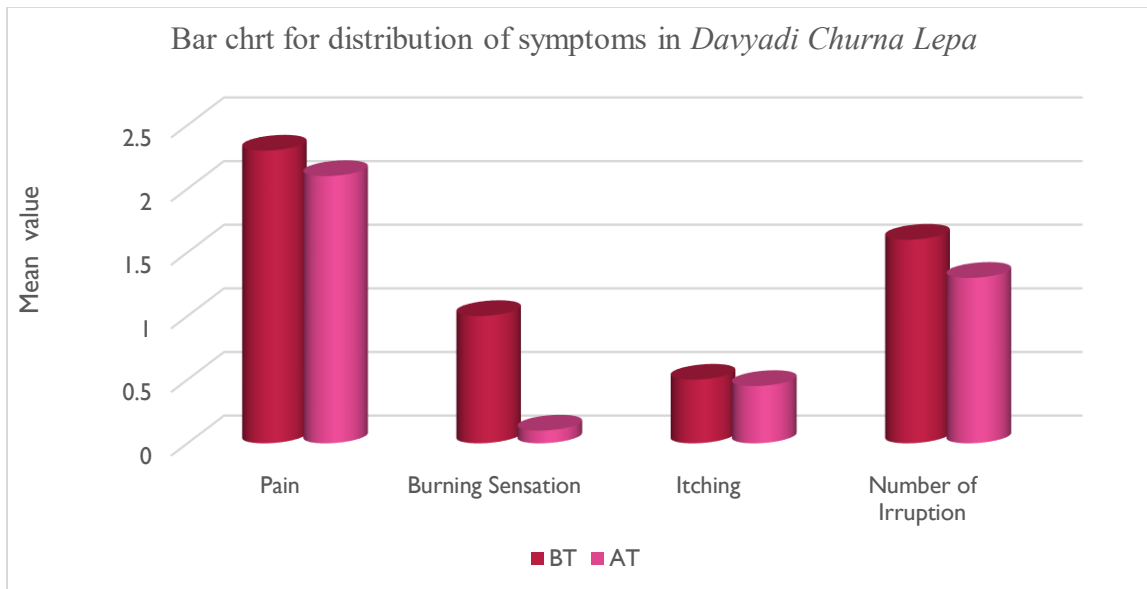
**PREPARATION OF KHADIRADI VATI<sup>19</sup>**

*Khadira Kastha* was first powdered into *Yavakuta* and boiled in water to prepare *Kwatha*, which was then concentrated. Fine powders of *Javitri*, *Karpura*, *Sitalacini*, *Puga*, and *Jatiphala* were added to form *Kalka*, shaped into 1 *Rati Vati*, shade-dried, and stored in a clean, airtight container.

**OBSERVATION & RESULTS**

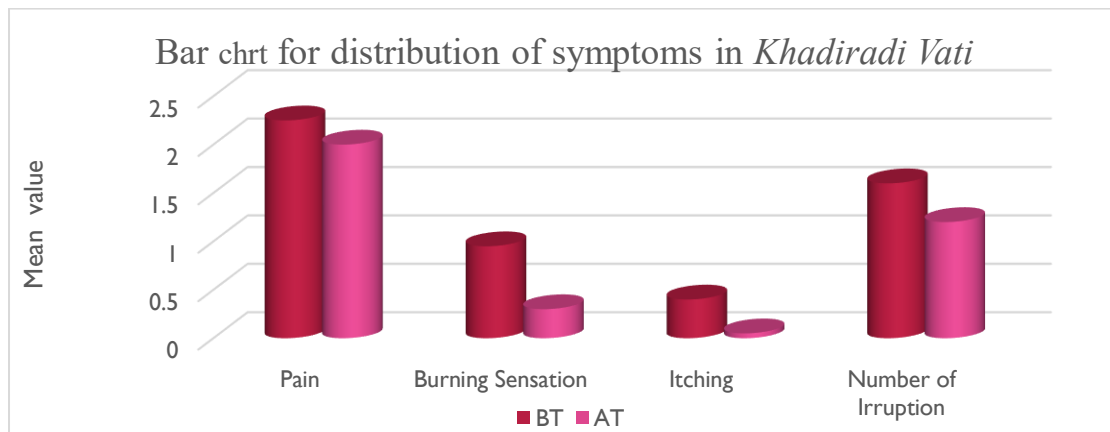
**CLINICAL STUDY**

**FIGURE NO. 1: GROUP A – EFFECT OF DAVYADI CHURNA LEPA**



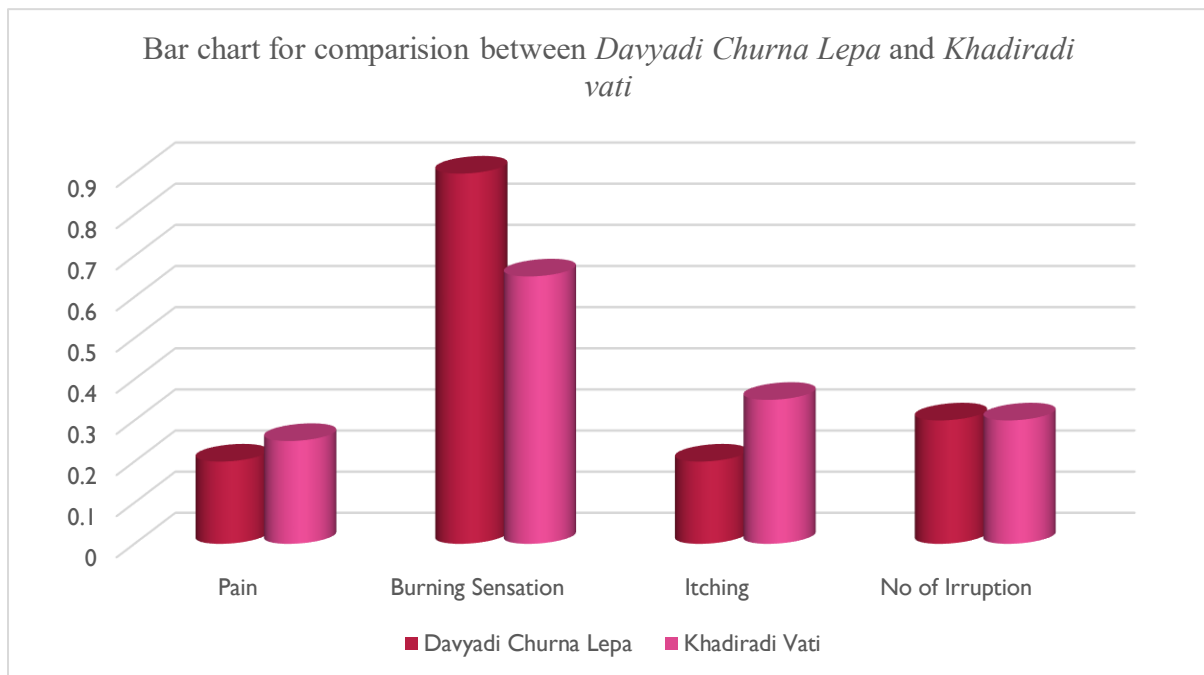
Patients in Group A treated with *Davyadi Churna Lepa* experienced marked improvement in all *Mukhapaka* symptoms, with burning sensation showing up to 90% relief.

**FIGURE NO. 2: GROUP B – EFFECT OF KHADIRADI VATI**



In Group B, patients treated with Khadiradi Vati experienced notable improvement in all *Mukhapaka* symptoms, with itching relieved up to 87.5% and burning sensation up to 68.4%.

FIGURE NO. 3: COMPARATIVE ANALYSIS OF *DAVYADI CHURNA LEPA* AND *KHADIRADI VATI*

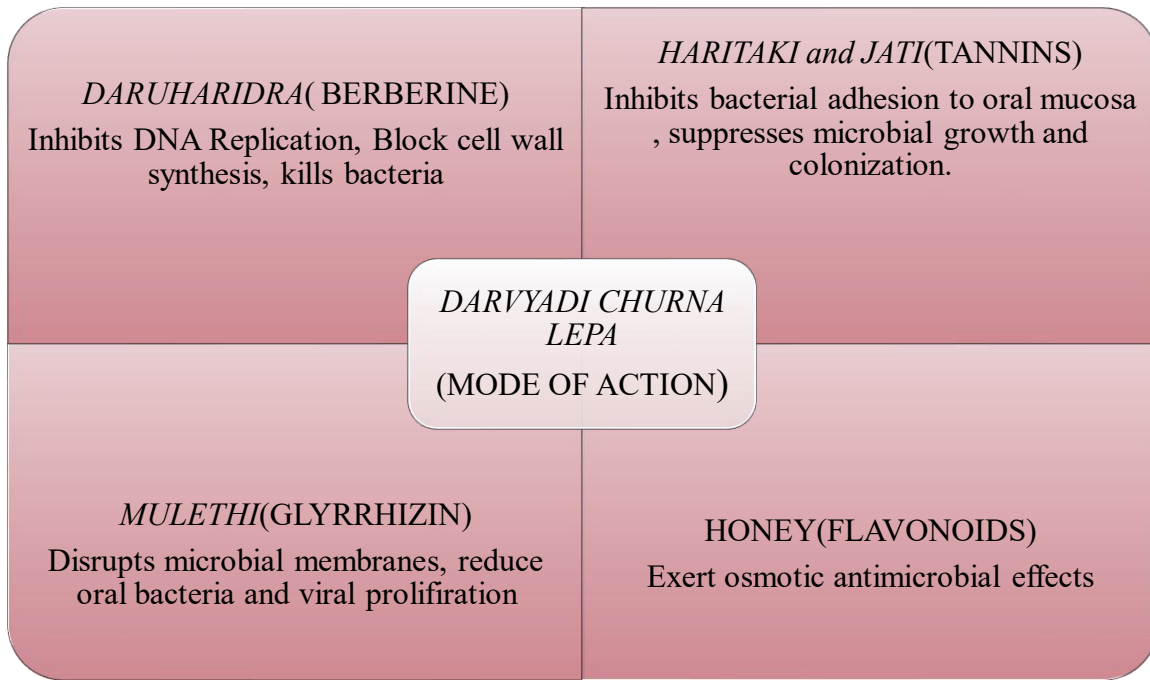


Both *Davyadi Churna Lepa* and *Khadiradi Vati* brought noticeable relief in all *Mukhapaka* symptoms. Statistical analysis showed no significant difference, suggesting that both treatments were effective and equally reliable.

## DISCUSSION

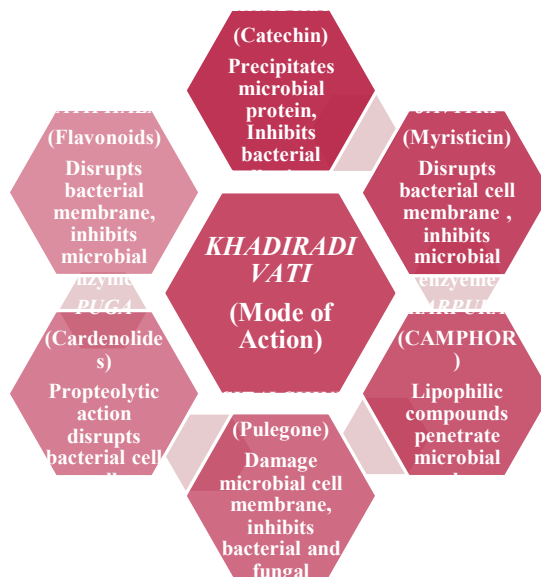
*Mukhapaka* in children is a common inflammatory condition of the oral cavity, characterised by pain, burning sensation, itching, and ulcer formation. In Ayurveda, *Mukhapaka* is considered a *Pitta*-dominant disorder involving *Rakta dhatu*. The vitiation of *Pitta* and *Rakta* results in excessive heat and inflammation, leading to burning sensation, ulceration, pain, and irritation. Effective management requires drugs with *Pittashamaka*, *Raktashodhaka*, *Shothahara*, and *Vranaropana* properties, addressing both the underlying *doshic* imbalance and the symptomatic distress. Based on these principles, *Davyadi Churna Lepa* and *Khadiradi Vati* were selected for the present study due to their traditional indications in oral inflammatory disorders and documented efficacy in pediatric care.

The mechanisms underlying the effectiveness of these formulations are linked to their bioactive constituents. *Davyadi Churna Lepa* effectively manages *Mukhapaka* by combining antimicrobial, anti-inflammatory, and healing actions from its herbal ingredients. *Daruharidra* (berberine)<sup>19</sup> inhibits bacterial DNA replication, weakens cell walls, and prevents biofilm formation, reducing oral pathogens. *Haritaki*<sup>20</sup> and Jati (tannins) block bacterial adhesion to the mucosa and suppress growth, while soothing inflammation to relieve pain and swelling. *Mulethi* (glycyrrhizin)<sup>21</sup> disrupts microbial membranes and calms inflamed mucosa, and *Madhu* provides osmotic antimicrobial action<sup>22</sup> and a protective coating over ulcers, promoting healing. Together, these actions control infection, reduce inflammation, and accelerate tissue repair, making it an effective pediatric treatment.



**FIGURE 04: MODE OF ACTION OF DARVYADI CHURNA LEPA**

*Khadiradi Vati* provides a holistic therapeutic effect in *Mukhapaka* by addressing both the microbial causes and the resulting inflammation. *Khadira*, which is rich in catechins and tannins, exhibits strong antimicrobial activity by precipitating microbial proteins, thereby preventing bacteria from adhering to and colonizing the oral mucosa<sup>23</sup>. *Jatiphala* (flavonoids)<sup>24</sup> and *Javitri* (myristicin) act by disrupting bacterial cell membranes and inhibiting key microbial enzymes, reducing bacterial growth and biofilm formation<sup>25</sup>. Lipophilic compounds in *Karpura* (camphor)<sup>26</sup> and *Sitalchini* (pulegone)<sup>27</sup> penetrate microbial membranes, causing structural damage and controlling both bacterial and fungal infections. *Puga*, containing cardenolides, has proteolytic effects that further compromise bacterial cell walls. Together, these components lower microbial load, control local infection, and reduce inflammation, while also supporting tissue repair. This synergistic action helps relieve burning, pain, and irritation, restoring the *Pitta-Rakta* balance, in line with Ayurvedic principles of treating both cause and symptoms.



**FIGURE 05: MODE OF ACTION OF KHADIRADI VATI**

In Group A, patients treated with *Darvyadi Churna Lepa* showed statistically significant improvement in all clinical symptoms. Pain reduced by 8.70%, itching improved by 40.00%, and the number of eruptions decreased by 18.75% ( $p < 0.05$ ). Burning sensation exhibited the highest improvement at 90.00%, which was highly significant ( $p < 0.001$ ). The remarkable relief in burning sensation can be attributed to the active constituents of the formulation. *Daruharidra* contains berberine<sup>19</sup>, which has strong antimicrobial and anti-inflammatory properties, reducing microbial load and inflammation. *Mulethi*, rich in glycyrrhizin, promotes mucosal healing and soothes irritation. *Haritaki* and *Jati* provide tannins that exert astringent effects, helping ulcers contract and heal faster. As burning sensation is primarily a *Pitta*-dominated symptom, the topical application of the *Lepa* directly addressed this complaint, resulting in maximum relief.

In Group B, patients treated with *Khadiradi Vati* also showed significant improvement in all clinical parameters. Pain and the number of eruptions improved by 11.11% and 25.00%, respectively ( $p < 0.05$ ), while burning sensation and itching showed highly significant improvement (68.42% and 87.50%;  $p < 0.01$ ). The pronounced relief in itching and burning sensation is due to the combined action of the formulation's components. *Khadira* acts as a *Rakta-shodhaka* and *Krimighna*, purifying blood, controlling infection, and reducing inflammation. Essential oils and active principles in *Javitri*, *Karpura*, and *Jatiphala* contribute antimicrobial, anti-inflammatory, and soothing effects. Itching, often caused by local irritation or mild infection, responded particularly well due to the *Vati*'s combined local and systemic action.

A comparison of both groups revealed no statistically significant difference in any clinical parameter ( $p > 0.05$ ), suggesting that both *Darvyadi Churna Lepa* and *Khadiradi Vati* were effective in managing *Mukhapaka* in children. However, subtle differences were observed in symptom-specific relief. *Darvyadi Churna Lepa* provided superior improvement in burning sensation (90.00%), while *Khadiradi Vati* was more effective in alleviating itching (87.50%). This difference may reflect the mode of action of each formulation. The *Lepa*, applied topically, delivers direct anti-inflammatory and *Daha-shamaka* effects to the inflamed mucosa, which may explain its stronger effect on burning sensation. In contrast, the orally administered *Vati* acts both locally and systemically, purifying blood, controlling infection, and reducing inflammation, contributing to greater relief in itching.

## CONCLUSION

This comparative clinical study evaluated the efficacy of *Darvyadi Churna Lepa* and *Khadiradi Vati* in managing *Mukhapaka* in children. Both treatments showed significant improvement in major symptoms, including burning sensation, pain, itching, and the number of eruptions, highlighting the effectiveness of Ayurvedic management in pediatric oral inflammatory conditions. *Darvyadi Churna Lepa* provided faster relief, particularly in reducing burning sensation and pain, due to its direct local action on the affected oral mucosa. Active constituents such as berberine from *Daruharidra*, glycyrrhizin from *Mulethi*, and tannins from *Haritaki* help control inflammation, prevent infection, and promote rapid ulcer healing. Its *Pitta-Kapha-shamana*, *Vrana-shodhana*, and *Vrana-ropana* properties contribute to quick symptomatic improvement. *Khadiradi Vati* was particularly effective in relieving itching and preventing ulcer recurrence, likely due to its *Rakta-shodhana*, antimicrobial, anti-inflammatory, and *Krimighna* properties. Overall, *Darvyadi Churna Lepa* is ideal for rapid relief, while *Khadiradi Vati* supports gradual healing and long-term prevention.

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