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Guduchi is Powder Dosage Form is used in Treatment of Diabetics Mellitus

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Abstract: *Guduchi is one of the most versatile rejuvenating herb, possessing numerous therapeutic attributes. Madhumehahara (Antidiabetic) properties of Guduchi are highly appreciated in Ayurveda and even in recent modern researches. Scattered information pertaining to antidiabetic role of Tinospora is accessible in Ayurvedic literature and there is need to assemble it. Present review Present review encompasses indepth information of antidiabetic potential of Guduchi and its various dosage forms from Ayurvedic view and to understand the possible mechanism of its action in combating the complex pathology of diabetes. Over the centuries, herbs have served as a major source of medicines for prevention and treatment of diseases including diabetes mellitus. These herbs are getting more importance around the globe and many studies have provided safety and efficacy of such herbal drugs in different condition. Guduchi Tinospora cordifolia is reported as highly potent -antidiabetic herb in and Guduchi Satva (GS) is popularly used to treat . In the present study, GS prepared from the stem of T. cordifolia was evaluated for hypoglycemic and Antidibetic. GS was powder dissolve in distilled water and administered to oral route of powder dosage form. Present review encompasses (i) in-depth information of antidiabetic potential of Guduchi and its various dosage forms from Ayurvedic view and (ii) to understand the possible mechanism of its action in combating the complex pathology of diabetes.*

Keyword: *Diabetes Mellitus, Guduchi, Madhumeha, Tinospora cordifolia.*

I. INTRODUCTION

Diabetes Mellitus (DM) is an age old disease described in Ayurveda as 'Madhumeha', a Tridosha predominant disease. The disease, if neglected, has far-reaching clinical, economical, and social impacts. Synthetic antihyperglycaemic agents are running in practices blindly. Do they really help diabetics?

Then why native Ayurvedic herbs provide better alternatives, owing to lesser side-effects and low cost than conventional antidiabetic drugs. World Health Organization has also substantiate Tinospora cordifolia (Willd.) Miers, commonly known as Guduchi, is one of such highly potent herbs used since ancient times by physicians to combat diabetes. Contemporary researches are now validating and approving those classical theories. Its various dosage forms and wide array of derived products (active, natural principles and crude extracts) have been

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Do they really help diabetics? Then why to endure synthetic drug woes? Ayurvedic herbs provide better alternatives, owing to lesser side-effects and low cost than conventional antidiabetic drugs. World Health Organization has also substantiated the utilization of herbal remedies to combat diabetes. Commonly known as Guduchi, is one of such highly potent herbs used since ancient times by physicians to combat diabetes. Contemporary researches are now validating and approving those classical theories.

Its various dosage forms and wide array of derived products (active, natural principles and crude extracts) have been mentioned/used in traditional system of medicine. Though plentiful researches already carried out during the only scattered information pertaining to its antidiabetic activity is accessible in ayurvedic system and there is need to assemble it. information discussing its effects and method of action is lacking. Therefore, a need was felt to compile available on the antidiabetic utility of this plant till recent, from the early begin used in Antidibetic patients. Tinospora cordifolia (Willd.) Miers, commonly known as Guduchi, is one of such highly potent herbs used since ancient times by physicians to combat diabetes. Contemporary researches are now validating and approving those classical theories. Its various dosage forms and wide array of derived products (active, natural principles and crude extracts) have been

II. CLINICAL SUPPORT ANTIDIBETIC

Until now, extensive pre-clinical studies are reported to rate effectiveness of *Tinospora cordifolia* (TC) for diabetes; however, sufficient clinical evidence is lacking.

- 1) Hypoglycaemic potential of TC was substantiated in a study (CTRI/2012/01/002368), wherein the two dosage forms of Guduchi viz.
- 2) Guduchi Ghana (solidified aqueous extracts) Clinical support to antidiabetic claims Until now, extensive pre-clinical studies are reported and Guduchi Satva (sedimented starchy aqueous extract) exerted significant hypoglycemic and anti-hyperglycaemic activity along with significant relief in signs and symptoms of type 2 diabetics. Statistically, Guduchi Ghana proved to be more effective than Satva control glycemic level. The study proved that, Ghana and Satva may be chosen as per Prakriti (individual constitution) as well as dosha pradhanya (dosha predominance) of disease; as Ghana was found more efficacious in Vata Kapha Prakriti patients

III. TAXONOMICAL CLASSIFICATION OF GUDUCHI

A. Scientific Name

Tinospora cordifolia.

B. Family

Menispermaceae

C. Order

Ranunculales

D. Kingdom

plantae

E. Subkingdom

Tracheophyta-vascular plants

F. Super Division

Spermatophyta-vascular plants

G. Division

Magnoliophyta-flowering

H. Class

Magnoliopsida-dicotyledons

I. Subclass

Polypetalae-petal are free;

J. Tribe

Tinosporaceae

K. Genus

Tinospora

L. Distribution

Guduchi is distributed throughout tropical and subtropical regions of India. It is indigenous to areas of India, Sri Lanka, China, Myanmar, Philippines, Malaysia, Bangladesh, and South Africa.

M. Morphological Characteristics

Gurcha is a gregarious glabrous, twiner. Older stems are up to 2 cm in diameter and have corky bark. Aerial roots arise from nodal scars of branches. Stem and branches are specked with white vertical lenticels. Bark is grey-brown or creamy white, warty, papery thin, and peels off easily. Leaves are 5–15 cm, ovate, and acute.

They are membranous when young but become more or less leathery with age.

IV. PROPERTIES OF GUDUCHI

A. Stem

Fleshy and climbing in nature Stem is made up of powder form used fever. Starch is obtained stem is also called giloy/ guduchi satava. Guduchi is powder dosage form is used in treatment of diabetes mellitus



B. Bark

White to grey colour. bark is used in treatment of type-1 diabetes and type-2 diabetes. bark is also used to prepare powder dosage form.



C. Leaves

Leaves of this plant are similar long petiolate alternate round, pulvinate, and heart shaped also twisted partially and half way around.



D. Roots

Roots are thread like aerial squarish in sometimes aerial roots are Roots are characterized tetra to penta primary structure

E. Seeds

Seeds are curve shaped and endocarp is various provide taxonomic Properties.



V. TYPE OF DIABETES

A. Type-1 Diabetes

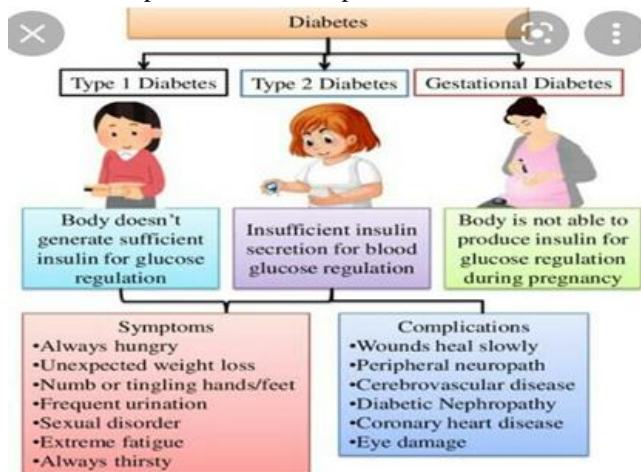
is insulin dependent diabetes, diabetes is also patients/people need of insulin, This Diabetes is also called as insulin dependent diabetes- mellitus/juvenile onset diabetes, Diabetes may be found to be 5-10% of diagnose case of diabetes diabetes is occur before age 30 especially for children, diabetes is pancreas cannot produce insulin

B. Type-2 Diabetes

Type-2 Diabetes is also called as resistance diabetes or non insulin dependent diabetes mellitus or adult onset diabetes Diabetes may be found to in 90-95% diagnosed case of diabetes. Diabetes occur age of 40 but more common in young

C. Gestational Diabetes

Gastistional diabetes is mainly found in pregnant women It is develop pragnancy 2-5%. Gestational diabetes occur people with family history of diabetes. Diagram of diabetic person and normal person:



Sr.No.	Normal person	Diabetic person
1	Food	Pancreas
2	Stomach	Produce insulin out either produce enough
3	Glucose	Insulin does not work properly
4	Absorbed through intestine	Sugar cannot go into cell by itself
5	Glucose go in blood vessels	Ultimately increases sugar level in blood.
6	Glucose transported in other cell	Glucose transported plasm membrane

D. Environmental Factors of Diabetes

Viral infection Vaccination Climatic influence Stress

Dietary factor in early infancy

E. Risk Factors of Diabetes

There have been two ideas of type-1& type-2 diabetes one is directly attack beta cell and pancreas.

Another affecting immune system of human body.

F. Risk Factors of type-2diabetes

More fatty tissue you have the more resistance your cell become to insulin.

G. Inactivity

Less active your greater risk. Family history Age Gestational diabetes polycystic of over syndrome High blood pressure Race or ethnicity.

H. Formulation

Giloy Satva Powder Satva is termed as the Sara bhaga or essence of plant material and in this case, it is the essence of the giloy or guduchi plant obtained from maceration in water.

I. Ingredients

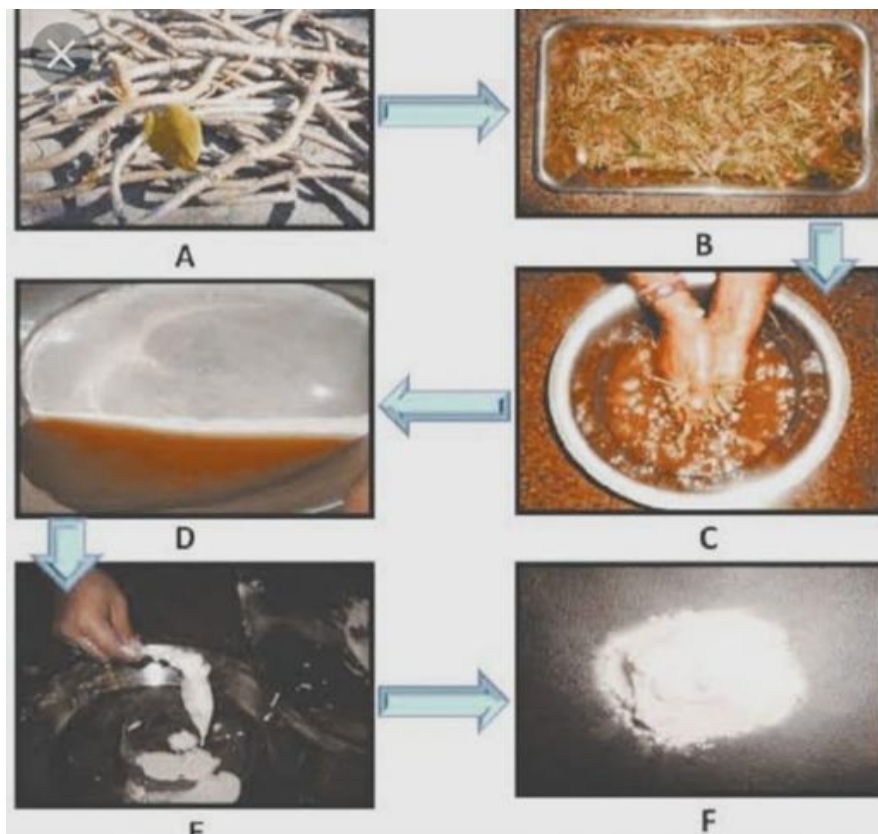
5 parts of fresh guduchi stem, 20 parts of water

1) *Flavouring Agent:* Lemon flavour

2) *Glidant:* Talcum.

J. Method

Wash the guduchi or giloy stems, remove the outer husks and cut the stems into smaller pieces of 2-3 inches length. Mash the stems inside the given quantity of water and allow it to settle overnight for about 10-12 hours. In the following morning, vigorously macerate the partially mashed giloy partially mashed giloy stems so as to release the mushy starchy material into the liquid. Filter the mixture a few times through mesh no.85(with minute sized pores) to remove any woody hard particles of the stem. And also added glidant and flavouring agent. Keep the liquid aside uninterrupted for 4-5 hours so that the filtrate separates from the residue. Carefully remove the supernatant liquid and collect the starchy sediment onto a tray. Air-dry the sediment under the fan and store it in air-tight vessels for future use To form fine powder to take patients in warm water and cool water take morning.



VI. CHEMICAL COMPOSITION

- PROTEIN
- CALCIUM
- STEROIDS
- LACTONES
- ALKALOIDS
- ALIPHATICS
- GLYCOSIDES
- HOSPHORUS
- DITERPENOID
- POLYSACCHARIDES
- PHENOLICS COMPOUNDS



VII. BENEFITS OF GUDUCHI

Guduchi is antioxidant activities. Guduchi is Antidibetic activity. Guduchi is antistress activity. Guduchi is used in traditional Ayurveda medicine and several properties. guduchi of plant part like body include root, stem, leaves, whole part are used in corona virus.

A. Modern Medicine use of type1 & type2 diabetes

What are the benefits of Giloy for Diabetes mellitus (Type 1 & type2) Giloy might be useful in managing diabetes by improving blood glucose levels It also helps to manage diabetes-related complications such as ulcers, wounds, kidney damage due to its antioxidant and anti inflammatory properties

B. Ayurvedic System of Medicine is used to treat type-1 and type2 diabetes

Giloy helps control high blood sugar level and various diabetic complications by improving digestion and absorption due to its Deepan (appetizer) and Pachan (digestive) properties which in turn prevents the formation of Ama.

- *Tip:* Take 1/2 teaspoon of Giloy Churna twice a day with water after taking lunch and dinner.

VIII. POWDER DOSAGE FORM

Fine powder of guduchi take oral dosage form Provide conveniently made of administration.

IX. ADVANTAGES OF POWDER DOSAGE FORM

A powder can be dispersed in water or another liquid and more easily swallowed.

Oral powders can be mixed with beverage or applesauce immediately before use.

Manufacturing of powder dosage form is economic, hence, product cost is quite economic as compared to other dosage forms.

Powders offer a lot of flexibility in compounding solids.

X. DISADVANTAGES OF POWDER

Powders are not the dosage form of choice for drugs with unpleasant taste. This is because masking of unpleasant tastes may be a problem with this type of preparation. Drugs that deteriorate rapidly with exposure to atmosphere or acidic pH should not be dispensed as powders.

XI. PRECAUTIONS OF WHEN GUDUCHI POWDER DOSAGE FORM

May cause the immune system to become more active which could further increase the symptoms of autoimmune diseases. Therefore, it is advisable to avoid Giloy if you are suffering from autoimmune diseases such as rheumatoid arthritis, multiple sclerosis and lupus. Giloy may lower blood glucose level. So it is generally advised to monitor the blood glucose if you are taking Giloy along with anti-diabetic

XII. PREGNANCY

Avoid medicinal use of Giloy during pregnancy due to the lack of scientific evidence

XIII. SYMPTOMS OF DIABETES

Excessive thirst Blurred vision Increase fatigue Extreme hunger Feeling tired

Dry skin

Burning sensation

More infection than usual

Slow healing of cuts and wound

Nausea, vomiting and stomach pain some of the

Symptoms in the onset of insulin dependent diabetes.

XIV. RESULTS

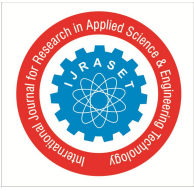
Results is statistically non-significant decrease in BSL was occurred in the control at few days like 3-5days, but significant decrease was in comparison to its initial BSL also take powder dosage form of guduchi also and control type-1 and type-2 non-significant decrease in BSL occurred at all the few day intervals in comparison to its initial BSL. Administration of powder dosage form take oral route in cool water/warmwater to overnight fasted leads to a significant decrease in the blood glucose level at almost all the time intervals progressively to the end of the study.

XV. CONCLUSION

Current reasearch spotlights the antidiabetic profile of Guduchi from Ayurvedic perspective and contemporary researches validating and approving it; which proves the herb a helping aid to prevent, reverse, or even delay the sequences of diabetes pathology. Conventional management options available are expensive and often associated with negative side effects; therefore, the use of Guduchi provides better alternative which are usually less toxic and affordable.

REFERENCES

- [1] Rasamruta, 6:16, July 2014 7 1. Mandlik RV, Desai SK, Naik SR, Sharma G, Kohli RK. Antidiabetic activity of a polyherbal formulation (DRF/AY/5001). *Indian J Exp Biol* 2008;46:599-606.
- [2] Sharma PV. *Dravyaguna Vigyan (Vegetable Drugs)* 1st ed. Vol. II. Varanasi: Chaukhambha Bharati Academy; 2003. pp. 761-3.
- [3] Tripathi I. *Raja Nighantu*. 4th ed. Varanasi: Chowkhamba Krishnada Pandey GS. Guduchyadi Varga. Bhavaprakash Nighantu. Varanasi: Chaukhamba Bharati Academy; 2006, p. 269.
- [4] Sharma PV. *Dhanwantari Nighantu*. 1st ed. Varanasi: Chowkhamba Bharti Academy; 2005. Guduchyadi varga, 1-4.p.16.
- [5] Sharma PV. *Kaideva Nighantu*. 1st ed. Varanasi: Chowkhamba Orientalia; 2006.p. Aushadhi varga, Rasamruta, 6:16, July 2014 8 1
- [6] Vangasena of Shaligram Vaishya, edited by Shankarlal Jain, 1st ed. Bombay: Khemraj Shrikrishnadas Prakashana; 2003, Prameharogadhikara, Chapter 65, p. 488.
- [7] Tripathi B, editor. *Sharangadhara Samhita of Sharangadhara (Madhyamakhanda)*. 4th ed., Ch. 1, Verse 7. Varanasi: Chaukhambha Surbharati Prakashana.; 2008. p. 126.
- [8] Acharya YT. *Siddha Yoga Sangraha*. Jwaradhikara, 13 th ed. Nagpur: Baidyanath Ayurveda Bhavan Ltd; 2008. p.4.
- [9] Navare K, editor, (1st ed.) *Nighantu Ratnakar of Panshikar VL and Soman KV*, part 1, Delhi: Choukhambha Sanskrit Sansthan, 2011; p. 75.
- [10] Sharma Rohit, Kumar V, Ashok BK, Galib R, Prajapati PK, Ravishankar B. Evaluation of hypoglycaemic and anti-hyperglycaemic activities of Guduchi Ghana in Swiss albino mice. *Int J Green Pharm* 2013;7:145-8.
- [11] Sharma Rohit, Kumar V, Ashok BK, Galib R, Prajapati PK, Ravishankar B. Hypoglycemic and anti-hyperglycemic activity of Guduchi Satva in experimental animals. *AYU* 2014;4:217-20.
- [12] Mahajan Nandini et.al. *Guduchi Kwatha ka Madhumeha (DM) mein prayogika adhyayana*. MD dissertation, Dept. of Dravya guna, Smt.KGM Punarvasu Ayu. College, Mumbai, 1998.
- [13] Soni Kamini et. al. *To study effect of Guduchichurna in Prameha*. MD dissertation Dept. of Kaya chikitsa, Ayu. Mahavidyalaya, Pune, 2000.
- [14] Khedekar S et. al. *A Pharmaceutico-Pharmaco-clinical Standardisation of Makaradhawa prepared by Swarna Patra, Swarna Varkha and Swarna Bhasma w.s.r. to Madhumeha (Diabetes Mellitus)*, MD dissertation, IPGT & RA, GAU, Jamnagar, Dept of RS & BK, Pharmaceutical study, p 90, 2009.
- [15] Parmar D et al. *The effect of Puta in the preparation of Vanga Bhasma w.s.r. to Madhumeha (Diabetes mellitus)*, MD dissertation, IPGT & RA, GAU, Jamnagar, Dept of RS & BK, Pharmaceutical study, p 84, 2009.
- [16] Dhundi S et al. *Pharmaceutical standardization of GuduchiGhana (solidified aqueous extract of Tinospora cordifolia miers.)*, *International Research Journal of Pharmacy*, 2011, 2 (11), p 102 *Rasamruta*, 6:16, July 2014 9
- [17] Sharma R, Shukla VJ, Ravishankar B, Prajapati PK. *The effect of two different dosage forms of Guduchi i.e. Satva and Ghana WSR Antihyperglycemic effect on Madhumeha (NIDDM)*, MD dissertation. IPGT & RA, Jamnagar: Gujarat Ayurveda University; 2012.
- [18] Bhaishjya Ratnavali of Govinda Das Sen, edited by Siddhi Nandan Mishra, chapter 37, *Prameharogadhikara*, 1st ed., Chaukhambha Surbharati Prakashana, Varanasi, 2005, p. 701- 718.
- [19] Arka Prakash of Ravan, edited by Indradeva Tripathi, 1st ed. Chapter 5, Verse 95, Varanasi: Krishnadas Academy; 1995. p. 92.
- [20] Reddy SS, Ramatholisamma P, Karuna R, Saralakumari D, Preventive effect of Tinospora cordifolia against high-fructose diet-induced insulin resistance and oxidative stress in male Wistar rats, *Food Chem Toxicol* 2009;47(9):2224-9.
- [21] Nile SH and Khobragade CNN. *Determination of nutritive value and mineral elements of some important medicinal plants from western part of India*. *J Med Plants* 2009;8:5:79-88.
- [22] Prince PS, Menon VP. *Antioxidant activity of Tinospora cordifolia roots in experimental diabetes*. *J Ethnopharmacol* 1999;65(3):277-81.
- [23] Kapil A, Sharma S. *Immunopotentiating compounds from Tinospora cordifolia*. *J Ethnopharmacol* 1997;58(2):89-95.
- [24] www.healthcaremagic.com/.../doctor-anxiety-pre-diabetes-United States, last accessed on 19/02/14 at 20:20.
- [25] Patwardhan B. *The quest for evidence-based Ayurveda: lessons learned*. *Current Science* 2012; 102:10.
- [26] Prabhakar PK, Doble M. *Synergistic effect of phytochemicals in combination with hypoglycemic drugs on glucose uptake in myotubes*. *Phytochemistry*. 2009 Dec;16(12):1119-26.
- [27] Shastri B, editor, (7nd ed.) *Commentary Vidhyotani of Shastri L on Yogaratnakara of Rasamruta*, 6:16, July 2014 7
- [28] Mandlik RV, Desai SK, Naik SR, Sharma G, Kohli RK. *Antidiabetic activity of a polyherbal formulation (DRF/AY/5001)*. *Indian J Exp Biol* 2008;46:599-606.



- [29] Sharma PV. Dravyaguna Vigyan (Vegetable Drugs) 1st ed. Vol. II. Varanasi: Chaukhamba Bharati Academy; 2003. pp. 761-3.
- [30] Tripathi I. Raja Nighantu. 4th ed. Varanasi: Chowkhamba Krishnadas Academy; 2006. Prabhadradi varga, 1-18.p.31.
- [31] Chunekar KC, Pandey GS. Guduchyadi Varga. Bhavaprakash Nighantu. Varanasi: Chaukhamba Bharati Academy; 2006, p. 269.
- [32] Sharma PV. Dhanwantari Nighantu. 1st ed. Varanasi: Chowkhamba Bharti Academy; 2005. Guduchyadi varga, 1-4.p.16.
- [33] Sharma PV. Kaideva Nighantu. 1st ed. Varanasi: Chowkhamba Orientalia; 2006.p. Aushadhi varga, 7-11.p.5.
- [34] Harishankar SL. Shaligram Vaishya krit Shaligram Nighantu. 3rd ed. Mumbai: Khemraj Shri Krishna Das Prakashan; 1912. Guduchyadi varga, P. 251-3
- [35] Bhatta KR, Bhatta RK, Swami LR. Siddha Bhaisajya Mani Mala. Dwitiya gucch, Vaishwanara Hindi commentary. 3rd ed. Varanasi: Chaukhamba Krishnadas Academy; 2003. P. 31.
- [36] Sushruta Samhita of Sushruta, edited by Acharya YT, Chaukhamba krishnadas academy, Varanasi. Reprint edition 2004. Chikitsa Sthana 12/6;459.
- [37] Ashtanga hridayam of Vagbhata, edited with Vidyotini hindi commentary by Atridev Gupt Vidyalankar, Chaukhamba sanskrit series, Varanasi. 3rd edition 2010. Chikitsa Sthana 12/7 372pp.
- [38] Chakradatta with Vaidyaprabha commentary of Chakrapani Datta, edited by Indradeva Tripathi, Chaukhamba Sanskrit sansthan, Varanasi. 3rd edition 1997, pp217.
- [39] Yogaratnakara by Dr.Indradeva Tripathi and Dr. Dayashankara Tripathi, Krishnadasa Ayurveda Series,Chaukhamba Ayurveda Prakashana, 2007, pp85.



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