



Review Article

MEDICAL FORMULAS FOR *KRIMIDANTA* (DENTAL CARIES) IN INDIGENOUS MEDICINE IN SRI LANKA
– A LITERARY REVIEW

Karunarathna HMHL^{1*}, Gamlath NWGND²

¹Temporary Tutor, ²Temporary Lecturer, Gampaha Wickramarachchi Ayurveda Institute, University of Kelaniya, Sri Lanka.

ABSTRACT

Krimidanta (Dental caries) is a common disease in Sri Lankan society. Preschool and schoolchildren are mostly affected by this condition. It is mostly affected on due to very low socioeconomic backgrounds with highly cariogenic dietary patterns, poor brushing habits and low value placed on oral health. Ayurveda authentic classic mentions this condition under the *Mukha Roga* of *Shalaky tantra*. According to main authentic classics of Ayurveda, such as *Susruta samhita*, *Ashtanga Hridaya samhita* and *Bhavaprakasha* clearly mention the condition of *Krimidanta* and its treatment procedure. A literature study was carried out to collect and analyze the formulas mentioned in well-known traditional texts including *Sarartha samgraha*, *Bhaisajja Manjusa*, *Prayogaratnavali*, *Yogarnava*, *Varayogasara* and 21 books of *Thalpathe piliyam* in indigenous medicine in Sri Lanka. According to the findings, 92 individual herbals materials (*Udbhida Dravya*), 7 Animal materials (*Jangama Dravya*) and 5 Minerals (*Parthiva Dravya*) have been used to treat *Krimidanta*. Among them mostly mentioned herbs are *Welkahambiliya* (*Tragia hispida*), *Wara* (*Calotropis gigantea*), *Attana* (*Datura metal*), *Inguru* (*Zingiber officinale*), *Tibbatu* (*Solanum torvum*), *Aralu* (*Terminalia chebula*), *Walagasal* (*Embelia ribes*) and *Diya beraliya* (*Monachoria hastata*). And also *Heen bovtiya* (*Osbeckia octandra*), *Heen udupiyaliya* (*Desmodium triflorum*), *Kebella* (*Aporusa lindleyana*), *Kiriwalla* (*Holarrhena mitis*) and *Niyada* (*Sansevieria zeylanica*) are found as endemic herbs in Sri Lanka. In the management of *Krimidanta*, *Karna Dhupana*, *Karna Purana*, *Dhuma*, *Kawala* external paste application for relevant cheek and *Kemkrama* were identified as exclusive treatment procedures in indigenous medicine. It was concluded that more herbal, several animal and mineral materials have been used for *Krimidanta* with exclusive treatment procedures in indigenous medicine in Sri Lanka.

KEYWORDS: Indigenous Medicine, *Krimidanta*, Medical Formulas, Sri Lanka.

INTRODUCTION

Krimidanta (Dental caries) is a common disease in Sri Lankan society. Preschool and schoolchildren are mostly affected by this condition due to very low socioeconomic backgrounds with highly cariogenic dietary patterns, poor brushing habits and low value placed on oral health. Ayurveda authentic classic mentions this condition under the *Mukha Roga* of *Shalaky tantra*.

Main authentic classics of Ayurveda called *Vuddatraya* and *Laghutraya*, *Susruta samhita* describe the condition with clinical features such as the tooth is black with cavity, loose, discharging, swollen and severely painful, pain appearing without any apparent cause as *Krimidanta*.^[1] *Ashtanga Hridaya samhita* indicates the *Dosa* with the predominance of *Maruta* undergoing increase, invade the teeth along with its root rise up the marrow, creates a cavity in to which the waste products of the food fill up because of the putrefaction, minute (invisible) worms develop inside, severe pain appears and disappears without any reasons, there is swelling, black coloration, shaking of the teeth, and discharge of pus and blood on shaking and this disease called *Krimidantaka*.^[2] *Bhavaprakasha* mentioned tooth has black holes, is shaky,

exudes fluids (blood or pus) has swelling and severe pain appearing without any apparent causes are the symptoms of *Krimidanta* produced by aggravated *vata*.^[3] *Caraka samhita*, *Madhava Nidana* and *Sharanghadhara samhita* do not mention about *Krimidanta*.

Not only were the clinical features, treatment procedures also mentioned in those texts. This literature study was carried out to collect and analyze the formulas recommended in the management of *Krimidanta* in indigenous medicine in Sri Lanka.

MATERIALS AND METHODS

Well-known traditional texts in indigenous medicine such as *Sarartha samgraha*, *Bhaisajja Manjusa*, *Prayogaratnavali*, *Yogarnava*, *Varayogasara* and 21 books of *Thalpathe piliyam* were selected. Medical formulas that were used to *Krimidanta Cikitsa* in the above classics were collected. Herbs, minerals and animal materials which are found in those formulas were apportioned individually. Among them, mostly used herbs and endemic herbs were recognized. Treatment procedures for *Krimidanta* that were used in these classics were identified.

Table 1: Herbs used for *Krimidanta cikitsa* in selected Traditional books

Local Name of herb	Scientific Name of herb	Frequency of occurrence in selected Traditional books	Endemic herbs in Sri Lanka
1. Abin	<i>Papaver soniferum</i>	6	
2. Akmalla	<i>Spilanthes paniculata</i>	1	
3. Anoda	<i>Abutilon indicum</i>	1	
4. Aralu	<i>Terminalia chebula</i>	9	
5. Attana	<i>Datura metel</i>	9	
6. Baludan	<i>Ardisia elliptica</i>	1	
7. Bintamburu	<i>Ipomoepes- Caprae</i>	1	
8. Bulu	<i>Terminalia bellerica</i>	3	
9. Daluk	<i>Euphorbia antiquorum</i>	7	
10. Dehi	<i>Citrus aurantifolia</i>	3	
11. Devduru	<i>Carum cavi</i>	2	
12. Diya beraliya	<i>Monochoria hastata</i>	8	
13. Diyameneri	<i>Commenlia benghalensis</i>	3	
14. Diyamiththa	<i>Cissampelo spareira</i>	2	
15. Ehela	<i>Cassia fisrula</i>	1	
16. Elabatu	<i>Solanum melongena</i>	6	
17. Erandu	<i>Ricinus communis</i>	4	
18. Erabadu	<i>Erythrina variegata</i>	2	
19. Ethdemata	<i>Gmelina arborea</i>	1	
20. Everiya	<i>Indigo ferahirsuta</i>	1	
21. Gajatippili	<i>Scindapsis officinalis</i>	1	
22. Gammiris	<i>Piper nigrum</i>	2	
23. Godakirrilla	<i>Holoptelea integrifolia</i>	1	
24. Goraka	<i>Garcinia cambogia</i>	1	
25. Getanitul	<i>Streblus asper</i>	1	
26. Getatumba	<i>Leucas zeylanica</i>	1	
27. Heeressapalu	<i>Cissus quadrangularis</i>	1	
28. Heenbovitiya	<i>Osbeckia octandra</i>	2	✓
29. Heenundupiyaliya	<i>Desmodium triflorum</i>	3	✓
30. Hingu	<i>Ferula foetida</i>	5	
31. Inguru	<i>Zingiber officinale</i>	9	
32. Kabarossa	<i>Smilax zeylanica</i>	1	
33. Kabella	<i>Aporusa lindleyana</i>	2	✓
34. Kaha	<i>Curcuma longa</i>	6	
35. Kaippu	<i>Acacia catechu</i>	1	
36. Kalanduru	<i>Cyperus rotundus</i>	4	
37. Karaabu	<i>Syzygium aromaticum</i>	1	
38. Karalsabo	<i>Achyranthus aspera</i>	3	
39. Katukarandu	<i>Barleria prionitis</i>	2	
40. Katukarosana	<i>Picrorhiza scrophulariiflora</i>	3	
41. Katuwelbatu	<i>Solanum virginianum</i>	2	

42. <i>Kedatta</i>	Not mentioned	1	
43. <i>Kotadimbula</i>	<i>Ficus hispida</i>	1	
44. <i>Kolon</i>	<i>Haldina cordifolia</i>	1	
45. <i>Kohomba</i>	<i>Azadirachta indica</i>	2	
46. <i>Kudumirissa</i>	<i>Toddalia asiatica</i>	2	
47. <i>Kottan</i>	<i>Terminalia catappa</i>	1	
48. <i>Kuppameniya</i>	<i>Acalypha indica</i>	1	
49. <i>Kumburu</i>	<i>Caesalpinia bonduc</i>	1	
50. <i>Kos</i>	<i>Artocarpus heterophyllus</i>	3	
51. <i>Kiri walla</i>	<i>Holarrhena mitis</i>	3	✓
52. <i>Lotsumbul</i>	<i>Symplocos racemosa</i>	1	
53. <i>Lunuwarana</i>	<i>Crateva adansonii</i>	1	
54. <i>Mahaeraminiya</i>	<i>Ziziphus rugosa</i>	1	
55. <i>Magulkaranda</i>	<i>Pongamia pinnata</i>	1	
56. <i>Munamal</i>	<i>Mimusops elengi</i>	1	
57. <i>Murunga</i>	<i>Moringa oleifera</i>	4	
58. <i>Mee</i>	<i>Madhuca longifolia</i>	2	
59. <i>Nika</i>	<i>Vitex negundo</i>	6	
60. <i>Nuga</i>	<i>Ficus benghalensis</i>	2	
61. <i>Naran</i>	<i>Citrus reticulata</i>	1	
62. <i>Niyada</i>	<i>Sansevieria zeylanica</i>	1	✓
63. <i>Nelli</i>	<i>Phyllanthus emblica</i>	4	
64. <i>Olinda</i>	<i>Abrus precatorius</i>	1	
65. <i>Pila</i>	<i>Tephrosia purpurea</i>	2	
66. <i>Patok</i>	<i>Euphorbia neriifolia</i>	1	
67. <i>Puvak</i>	<i>Areca catechu</i>	1	
68. <i>Pamburu</i>	<i>Pamburu smissionis</i>	1	
69. <i>Pinna</i>	<i>Clerodendrum kaemferi</i>	1	
70. <i>Pota</i>	<i>Pothos scandens</i>	1	
71. <i>Podiarisi</i>	<i>Croton officinalis</i>	1	
72. <i>Penela</i>	<i>Cardiospermum halicacabum</i>	1	
73. <i>Pol</i>	<i>Cocos nucifera</i>	3	
74. <i>Rammanissa</i>	<i>Cleome viscosa</i>	4	
75. <i>Rukattana</i>	<i>Alstonia scholaris</i>	3	
76. <i>Rathambala</i>	<i>Ixora coccinea</i>	3	
77. <i>Samanpichcha</i>	<i>Jasminum officinale</i>	3	
78. <i>Sarana</i>	<i>Trianthem aportulacastrum</i>	1	
79. <i>Sudulunu</i>	<i>Allium sativum</i>	1	
80. <i>Tibbatu</i>	<i>Solanum trilobatum</i>	9	
81. <i>Tippili</i>	<i>Piper longum</i>	4	
82. <i>Thal</i>	<i>Borassus flabellifer</i>	1	
83. <i>Thora</i>	<i>Cassia tora</i>	1	
84. <i>Tumbakaravila</i>	<i>Momordica dioicas</i>	1	
85. <i>Wellangiriya</i>	<i>Capparis zeylanica</i>	1	

86. <i>Walangasal</i>	<i>Embelia ribes</i>	8	
87. <i>Wara</i>	<i>Calotropis procer</i>	10	
88. <i>Welkahambilia</i>	<i>Tragia hispida</i>	12	
89. <i>Wela</i>	<i>Cleome gynandra</i>	5	
90. <i>Weniwel</i>	<i>Coscinium fenestratum</i>	5	
91. <i>Welmadata</i>	<i>Rubia cordifolia</i>	1	
92. <i>Welmee</i>	<i>Glycyrrhiza glabra</i>	1	

Table 2: Animal materials used for *Krimidanta cikitsa* in selected Traditional books

Local name	English name
1. <i>Delipothu</i>	Cuttlebone
2. <i>Elukiri</i>	Goat milk
3. <i>Gitel</i>	Ghee
4. <i>Goma</i>	Cow stool
5. <i>Gomutra</i>	Cow urine
6. <i>Lakada</i>	Resin of <i>Laccifer lacca</i>
7. <i>Mipeni</i>	Bee Honey

Table 3: Mineral used for *Krimidanta cikitsa* in selected Traditional books

Local name	English name
1. <i>Hiriyal</i>	Yellow Orpiment
2. <i>Manoshila</i>	Bisulphide of Arsenic (Realgar)
3. <i>Muhudulunu</i>	Sea Salt
4. <i>Sahindalunu</i>	Rock Salt
5. <i>Yawakshara</i>	Potassium carbonate

Table 04: Treatment Procedures for *Krimidanta* in Ayurveda and Indigenous medicine

Treatment Procedures	Susruta Sambhita [4]	Ashtanga Sambhita [5]	Bhavaprakasha [6]	Sararthasa ngraha [7]	Bhaisajyam anjusa [8]	Prayogarat navali [9]	Yogarnawa [10]	Varayogasara [11]	Talpatepiliyam [12]
<i>Sweda</i>	✓	✓	✓						
<i>Rakta mokshana</i>	✓	✓	✓				✓		
<i>Nasya</i>	✓	✓	✓	✓					
<i>Gandusha</i>	✓	✓	✓	✓	✓	✓	✓	✓	✓
<i>Pralepa</i>	✓	✓	✓	✓			✓	✓	✓
<i>Snigdha bhojana</i>	✓		✓	✓					
<i>Danta purana</i>		✓		✓					
<i>Danta nirghatana</i>	✓	✓							
<i>Chewing drug</i>				✓					
<i>Pratisarana</i>			✓					✓	✓
<i>Karna purana</i>						✓	✓		
<i>Karna dhuma</i>									✓
<i>Dhuma</i>								✓	✓
<i>Kawala</i>							✓	✓	✓
<i>Pralepa for cheek</i>									✓
<i>Kemkrama</i>									✓

DISCUSSION

According to the findings, 92 individual herbals materials (*Udbhida Dravya*) have been used to treat *Krimidanta* in the selected traditional texts. Among them mostly mentioned herbs include *Welkahambiliya* (*Tragia hispida*), *Wara* (*Calotropis gigantea*), *Attana* (*Datura metal*), *Inguru* (*Zingiber officinale*), *Tibbatu* (*Solanum torvum*), *Aralu* (*Terminalia chebula*), *Walagasal* (*Embelia ribes*) and *Diyaberaliya* (*Monachoria hastata*). And also *Kebella* (*Aporusa lindleyana*), *Niyada* (*Sansevieria zeylanica*), *Heen udupiyaliya* (*Desmodium triflorum*), *Heen bovitiya* (*Osbeckia octandra*) and *Kiri walla* (*Holarrhena mitis*) are found as Endemic herbals in Sri Lanka. 7 Animal materials (*Jangama Dravya*) were identified in those medical formulas such as *Delipothu* (Cuttlebone), *Elukiri* (Goat milk), *Gitel* (Ghee), *Goma* (Cow stool) *Gomutra* (Cow urine) *Lakada* (Resin of *Laccifer lacca*) and *Mipeni* (Bee honey). In addition, 5 minerals were identified. They are *Hiriyal* (Yellow Orpiment), *Manoshila* (Bisulphide of Arsenic (Realgar), *Muhudulunu* (Sea Salt), *Sahindalunu* (Rock Salt) and *Yawakshara* (Potassium carbonate). In the management of *Krimidanta*, *Karna Dhupana*, *Karna Purana*, *Dhuma*, *Kawala*, external past application for relevant cheek, chewing drugs and *Kemkrama* were identified as exclusive treatment procedures in indigenous medicine. *Sweda* and *Danta nirghatana* are only mentioned in Ayurveda texts. *Rakta mokshana*, *Nasya*, *Gandusha*, *Pralepa*, *Snigdha bhojana* and *Danta purana* are mentioned in both Ayurveda and indigenous texts.

CONCLUSION

It can be concluded that more herbs, several animal and mineral materials have been used for *Krimidanta* with exclusive treatment procedures in indigenous medicine in Sri Lanka.

REFERENCES

1. Sharma P.V, *Susruta Samhitha*, vol II, Varanasi; Cowkhamba vishvabharati; 2005. p.107.
2. Srikantha Murthy K.R, *Astanga Hradayam*, vol II, Varanasi; Cowkhamba Krishnadas Academy; 2004. p.188.
3. Srikantha Murthy K.R, *Bhavaprakasha* Cowkhamba Krishnadas Academy, Varanasi, 2004.p. 744.
4. Sharma P.V, *Susruta Samhitha*, vol II, Varanasi; Cowkhamba Vishvabharati; 2005. p.
5. Srikantha Murthy K.R, *Astanga Hradayam*, vol II, Varanasi; Cowkhamba Krishnadas Academy; 2004. p.
6. Srikantha Murthy K.R, *Bhavaprakasha* Cowkhamba Krishnadas Academy, Varanasi, 2004.p.
7. King Buddhadasa), *Sarartha samgraha*, Nugegoda; Gangodawila;1987. p.390.
8. Pasmul Piriwen Thero, *Bhaisajja Manjusa*, Nugegoda; Modern Book shop;1962. p.753.
9. Buddhaputra Thero, *Prayogaratnavali*. Maradana; Maligakanda; 1943. p. 64-65.
10. Buddhaputra Thero, *Yogarnava*, Colombo; MD Gunasena book shop; 2008. p.74, 69-77.
11. Kirialle Gnanawimala Thero, *Varayogasara*, Colombo; 1983. p. 116.
12. *Thalpathe piliyam*, Colombo; Department of Ayurveda; 2004. p.1/314. 2/8, 4, 12. 3/201,205. 4/290, 291.
13. Herbal plants Sri Lanka [homepage on the Internet]. Available from: <http://herbalplantslanka.blogspot.com>

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*Address for correspondence

Dr Karunarathna HMHL
Temporary Tutor, Gampaha
Wickramarachchi Ayurveda Institute,
University of Kelaniya, Sri Lanka,
Email: hasini869@gmail.com
Ph: +940712382441