

Review Article

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HERBAL PLANTS MENTIONED IN AYURVEDA AND TRADITIONAL SYSTEMS OF MEDICINE FOR BRUISE TREATMENT: A REVIEW

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Abstract: Bruise treatment is one of the global scientific treatment issues most of researchers are looking for to find a proper drug to access to this important aim and there are some different drugs in this field. Research on bruise treatment drugs is a developing area in modern biomedical sciences. Scientists who are trying to develop newer drugs from natural resources are looking toward the Ayurveda, the Indian traditional system of medicine. Most of these drugs are derived from plant origin. Some of these plants have been screened scientifically for the evaluation of their bruise treatment activity in different pharmacological models and patients, but the potential of most remains unexplored. In a few cases, active chemical constituents were identified. This article represent bruise treatment activity of various herbal plants which is mentioned in Ayurveda as well as used traditionally and has been screened scientifically.

Key words: Bruise treatment, Herbal plants.

1. INTRODUCTION

Bruise treatment is a relevant organic case involving tissue improvement and regeneration. A bruise is described as 'a break in the continuity of tissue, from violence or trauma' and is regarded as healed if there is a restoration of the bruise or inflamed tissue to normal condition¹. Bruise treatment can be classified into any of three type's treatment by first intention, treatment by second intention or treatment by third intention, depending on the nature of the edges of the healed Bruise.

In Bruise healed by the first intention, the edges are smoothly closed that no scar is left. On the other hand, bruise treatment by second intention involves formation of granulation tissues, which fill up the gaps between the bruise edges and is associated with significant loss of tissue, leaving little scars. Bruise healed by third intention, are usually those left open for three to five days until granulation bed falls before they are sutured, generally resulting in extensive scar formation.²

There are four distinct stages involved in bruise treatment namely inflammatory stage, debridement stage, proliferation stage and maturation/remodeling stage.² When an injury occurs, the vascular integrity of the injured area is disrupted leading to extravasations of blood into the surrounding tissue or plasma when the break is small. The inflammatory stage is directed at inhibit further reduce of blood by platelet adhesion/accumulation at the site leading to coagulation that result to the development of thrombus. The debridement stage found from the 3 to 6 day after injury and involves the presentation of neutrophils to clear contaminating organisms. The proliferation or repair stage is identifying by endothelial budding in the closes blood vessels forming novel capillaries that penetrate and nourish the damage tissue. The maturation stage commences from the tenth day to several months depending on bruise severity during which the number of capillaries decreases and bruise changes from pink to white.²

Certain factors that influence bruise treatment include bacterial infection, nutritional deficiency, drugs, sterility, obesity, movement of bruise edges, site of wound, and wasting diseases.³

Several drug classes have been used in the management of Bruise. Among these are the antibiotics. Penicillin and streptomycin have been generally employed in combating post-operative disease in Humankind and animal.⁴

The antibiotics are chosen based on their ability to destroy or inhibit the growth of pathogenic organisms, while the tissue is left unharmed. Antibiotics used should be applied to achieve maximum concentration in the tissue as quickly as possible and continued until 48 h after disappearance of symptoms unless signs of toxicity are shown.⁵

2. MEDICINAL PLANTS

Herbal plants mentioned in Ayurveda and Traditional systems of medicine for bruise treatment are given in table no.1

TABLE 1: - Herbal plants mentioned in Ayurveda and traditional systems of medicine for bruise treatment .

S. No	Botanical name	Common name	Family	Parts used	Indications mentioned	Ref. no.
1	Abies webbiana	Talisa	Pinaceae	Leaves	Bruise	45
2	Abrus precatorius	Gunja/ Kunch	Leguminosae	Seeds	Bruise	44
3	Acacia catechu	Khadira/ Khair	Mimosoidea e	Stem bark	Bruise , , diabetic wound	43
4	Acacia farnesiana	Irimeda	Leguminosae	Stem bark	Bruise	46
5	Acorus calamus	Bacha	Araceae	Rhizome	Bruise , diabetic carbuncle, septic Bruise	44, 45, 48
6	Achyranthus aspera	Apamarg a	Amaranthaceae	Whole plant	Bruise , sinuses	45
7	Achyranthus bidentata	Raktapus pi	Amaranthaceae	Whole plant	Bruise	46
8	Adhatoda vasica	Basak	Acanthacea e	Leaves	Diabetic carbuncle	48
9	Adiantum lunulatum	Hansapadi	Polypodiace ae	Leaves	Bruise , cellulites	47
10	Aegle marmelos	Bilwa	Rutaceae	Leaves, stem	Erysipelas, diabetic	44, 48

				bark	carbuncle	
11	Albizzia lebbeck	Shirisa	Leguminosae	Stem bark	Bruise , septic Bruise	48
12	Aloe vera L.	Korphad	Liliaceae	Leaves	Bruise	50, 51, 52, 53
13	Alstonia scholaris	Chatima	Apocynaceae	Leaves	Fistula-in-ano, maggots in Bruise	44
14	Amomum subulatum	Bhadraila	Zingiberaceae	Seed	Bruise	46
15	Andropogon squarnosus	Bena	Gramineae	Root	Bruise , syphilitic ulcer	43, 44, 45
16	Andropogon muricatus	Virana	Graminae	Root	Bruise	46
17	Anogeissus latifolia	Dhava	Combretaceae	Stem bark	Bruise	43
18	Angelica glauca	Chorak	Umbelliferae	Root	Bruise	47
19	Anthocephalus cadamba	Kadamba	Rubiaceae	Stem bark	Bruise , syphilitic ulcer	43
20	Aquilaria agallocha	Aguru	Thymelaeaceae	Latex	Wound, diabetic wound, syphilitic wound	43, 44, 45
21	Areca catechu	Supari	Arecaceae	Fruit	Bruise	50, 51, 52, 53
22	Argemone mexicana	Pivala dhotara	Papaveraceae	Leaves, Latex	Bruise	50, 51, 52, 53
23	Artemesia vulgaris	Nagdani	Compositae	Stem twig	Bruise	44
24	Asparagus racemosa	Satavari	Liliaceae	Root	Erysipelas	46
25	Azadirachta indica	Neem	Meliaceae	Root	Bruise , syphilitic wound	43, 44, 45, 49
26	Baliospermum monatanum	Danti	Euphorbiaceae	Leaves	Bruise , fistula-in-ano	44, 48
27	Bassia longilifolia	Jalaja	Sapotaceae	Seeds	Bruise	47
28	Balanites roxburghii	Hingana	Simarubaceae	Stem bark	Bruise	46
29	Barleria	Pivali	Acanthacea	Leaves	Bruise	50, 51,

	prionitis L.	Koranti	e			52, 53
30	Bauhinia purpura	Kabidara	Leguminosae	Gum	Bruise	46, 47
31	Berberis aristata	Daruhari dra	Berberidaceae	Wood	Bruise , diabetic carbuncle, septic Bruise , fistula-in-ano, syphilitic ulcer, sinuses	43, 44, 45, 49
32	Boerhaavia diffusa	Punarnava	Nyctaginaceae	Whole plant	Bruise , syphilitic ulcer	45
33	Brassica juncea	Mohari	Brassicaceae	Fruit	Bruise	50, 51, 52, 53
34	Bryophyllum calycinum	Panfuti	Crassulaceae	Leaf	Bruise	50, 51, 52, 53
35	Caesalpinia bonducilla	Karanja	Leguminosae	Seeds	Bruise , septic Bruise , maggots in Bruise , fistula-in-ano	44
36	Caesalpinia sappan	Kuchandan	Leguminosae	Seeds	Bruise	46
37	Calotropis gigantea	Rajarka	Asclepiadaceae	Milky juice	Bruise	46
38	Capparis aphylla	Karira	Capparidaceae	Root bark	Bruise	47
39	Calotropis prosera	Akanda/ Rui	Asclepiadaceae	Root bark, Latex, leaves	Bruise , maggots, fistula-in-ano	43, 44, 48
40	Calendula officinalis	Zendu	Asteraceae	Flowers	Bruise	50, 51, 52, 53
41	Capparis sepiaria	Kalikara	Capparidaceae	Root bark	Bruise	45
42	Cardiospermum halicacabum	Lataphat ki	Celastraceae	Seed	Fistula-in-ano	46
43	Cassia alata	Shimai-agase	Caesalpinae	Leaves	Bruise	50, 51, 52, 53
44	Cassia auriculata	Tarwad	Caesalpinae	Leaves and Bark	Bruise	50, 51, 52, 53
45	Cedrela toona	Tuni	Leguminosae	Seeds	Bruise	46, 47

46	Cedrus deodara	Devdaru	Anonaceae	Leaves	Bruise , syphilitic ulcer	44
47	Celastrus panniculatus	Joytismati	Celastraceae	Seeds	Bruise	46
48	Cinammonum tamala	Patra	Lauraceae	Stem bark	Erysipelas	43
49	Cissampelos pareira	Aknadi	Menispermaceae	Root	Septic wound, fistula-in-ano	48
50	Citrullus colocynthis schard	Indrabaruni	Cucurbitaceae	Root, fruit	Bruise	46
51	Citrus decumonana	Baranimbu	Rutaceae	Leaves, seeds	Abscess	45
52	Citrus medica	Matulunga	Rutaceae	Fruit juice	Septic Bruise	44
53	Clitoria terentaea	Aparajita	Leguminosae	Seed, Root bark	Bruise	46, 47
54	Coleus vettiveroides	Valakam	Labiatae	Whole plant	Bruise	47
55	Commiphora mukul	Gugal	Burseraceae	Bark	Bruise	50, 51, 52, 53
56	Crocus sativus	Kumkuma	Iridaceae	Flower	Bruise	47
57	Curcuma longa	Haridra/ Halad	Zingiberaceae	Rhizome	Bruise , diabetic carbuncle, septic wound	44, 45, 48
58	Curcuma zedoria	Ekangi	Zingiberaceae	Tuber	Bruise	46
59	Cynodon dactylon	Durva	Gramineae	Whole plant	Bruise , abscess	43, 44, 45, 48
60	Cyperus rotundus	Mustak	Cyperaceae	Root	Bruise	43
61	Datura fastuosa	Dhutura	Solanaceae	Leaves	Bruise	45
62	Datura stramonium	Kateri dhotara	Solanaceae	Leaves	Bruise	50, 51, 52, 53
63	Daucas carota	Gajar	Apiaceae	Root	Bruise	50, 51, 52, 53
64	Desmodium	Shalaparni	Leguminosae	Whole plant	Erysipelas	43

	gangeticum					
65	Desmotrichum fimbriatum	Jivanti	Orchidaceae	Root	Bruise	43
66	Dolichos biflorus	Kulattha	Leguminosae	Seed	Bruise	44
67	Eclipta alba	Keshuta	Compositae	Root	Erysipelas	43
68	Elephantopus scaber	Gojia	Compositae	Root	Bruise , erysipelas	43, 44
69	Eleutraia cardamomum	Elaich	Zingiberaceae	Seed	Bruise , syphilitic wound	43, 44, 45
70	Embelia ribes	Bidanga	Myrsinaceae	Fruit	Bruise , fistula-in-ano	43, 44
71	Emblica officinalis	Amlaki	Euphorbiaceae	Fruit, leaves	Bruise , syphilitic Bruise , fistula-in-ano	43, 45
72	Ephedra vulgaris	Somlata	Gnetaceae	Green twig	Bruise	44
73	Eugenia jambolana	Jambu	Myrtaceae	Stem bark, leaves	Erysipelas	43
74	Euophorbia nerifolia	Snuhi	Euphorbiaceae	Latex	Bruise	48
75	Euphorbia thymifolia	Dugdhika	Euphorbiaceae	Whole plant	Bruise , erysipelas, diabetic carbuncle, fistula-in-ano	43, 44
76	Evolvulus alsinoides	Shankha puspi	Umbelliferae	Fruit	Stye sepsis	46
77	Ficus bengalensis	Vad	Moraceae	Stem bark	Bruise , abscess, syphilitic ulcer	43, 44, 48
78	Ficus hispida	Kakodambara	Moraceae	Stem bark	Bruise	46, 47
79	Ficus lacor Buch.	Plaksha	Moraceae	Stem bark	Bruise , erysipelas	43
80	Ficus racemosa	Jagyadumur	Moraceae	Leaves	Bruise , abscess, syphilitic ulcer	43, 44, 48
81	Ficus religiosa	Pimpel	Moraceae	Bark	Bruise	50, 51, 52, 53
82	Gloriosa	Langloli	Liliaceae	Root	Bruise	46

	superba					
83	Glycyrrhiza glabra	Jastimadhu	Leguminosae	Root	Bruise , erysipelas, septic Bruise , abscess	43, 44, 45, 48
84	Grewia tiliaefolia	Dhamina	Tiliaceae	Stem bark	Bruise	46
85	Gymnema sylvestre	Meshasri ngi	Asclepiadaceae	Leaves	Bruise	45
86	Hedychium spicatum Ham ex Smith.	Sathi	Zingiberaceae	Root stalk	Purulative ulcer	47
87	Heliotropium indicum	Hatisura	Boraginaceae	Leaves	Bruise , sinuses, fistula-in-ano	48
88	Hemidesmus indicus	Anantamul	Asclepiadaceae	Root	Bruise , diabetic carbuncle, abscess	43, 44, 45, 48
89	Holarheena antidyserterica	Kutaja	Apocynaceae	Stem bark	Bruise	43
90	Hordeum vulgare	Yava	Gramineae	Grain	Bruise , erysipelas	43, 44, 45
91	Hydrolea zeylanica	Ishalambla	Hydrophyllaceae	Root	Bruise , diabetic carbuncle, fistula-in-ano	44
92	Ichnocarpus frutescens	Shyama	Apocynaceae	Root	Bruise , diabetic carbuncle	44, 48
93	Indigofera aspalathoides	Ingudi	Leguminosae	Seeds	Septic Bruise	44
94	Ipomea turpethum	Trivirita	Convolvulaceae	Root	Bruise , abscess, syphilitic ulcer, diabetic carbuncle, fistula-in-ano	44, 48
95	Ipomea paniculata	Bhumikushmanda	Convolvulaceae	Root	Erysipelas	43
96	Iris germanica	Padmake shar	Iridaceae	Stem	Bruise , erysipelas	43, 44, 45
97	Jasminum auriculatum	Juthika	Oleaceae	Flower	Bruise	46

98	Jasminum officinale	Jati	Oleaceae	Root	Bruise , maggots in Bruise	44, 45
99	Jasminum sambac	Mallika	Oleaceae	Leaves	Bruise	46, 47
100	Lagenaria vulgaris	Ikshaku	Cucurbitace ae	Seeds	Cellulitis	47
101	Lens culinaris	Musur	Leguminosa e	Leaves	Erysipelas	43
102	Lippia nodiflora	Jalapippa i	Verbenacea e	Fruit	Bruise	47
103	Loranthus asper	Bandaka	Loranthacea e	Whole plant	Bruise	47
104	Luffa acutangula	Kritamul	Cucurbitacea e	Leaf juice	Septic wound	44
105	Luvunga scandens Buch.	Kakoli	Rutaceae	Root	Bruise , sinus, syphilitic wound	43, 44
106	Mallotus phippiensis	Kampilla ka	Euphorbiacea e	Seed	Bruise	43
107	Mentha viridis	Pudina	Lamiaceae	Leaves	Bruise	50, 51, 52, 53
108	Mertynia diandra	Baghnak hi	Mertyneacea e	Fruit, flower	Bruise	46
109	Mesua ferrea	Nagkesar	Guttiferae	Stamen	Erysipelas	43
110	Mimosa pudica	Lajjalu	Mimosoidae	Whole plant	Bruise	46, 47
111	Mimusops elengi	Bakul	Sapotaceae	Stem bark	Bruise	48
112	Moringa oleifera	Sajina/ Shevga	Moringacea e	Root, Leaves	Bruise , abscess	44
113	Musa paradisiaca	Kadali	Musaceae	Stem juice	Erysipelas	43
114	Mucuna pruriens	Kapikachhu	Leguminosa e	Root	Bruise	44
115	Myrica nagi	Katphala	Myricacea e	Stem bark	Bruise	44, 45
116	Nardostachys jatamansi	Jatamansi	Valerianacea e	Root	Bruise	45
117	Nelumbo n speciosum	Kamal	Nymphaeacea e	Root	Erysipelas	47
118	Nelumbo	Pundariy	Nymphaeac	Stem	Bruise ,	43, 44

	nucifera	a	eae	stalk	erysipelas, syphilitic wound	
119	Nerium indicum Mill.	Karabi/K aneri	Apocyanace ae	Root, Leaves	Bruise , bruise maggots, fistula-in-ano	43, 44
120	Nymphaea lotus Stellata	Shapla	Nymphaeac eae	Root stalk	Erysipelas	43
121	Nymphaea stellata	Nilotapa la	Nymphaeac eae	Root stalk	Syphilitic ulcer, erysipelas	47
122	Odina woodier	Jingira	Anacardiace ae	Stem bark	Bruise	46
123	Oledeland ia biflora	Khetpapr a	Rubiaceae	Whole plant	Bruise	45
124	Oryza sativa	Shetashal itandula	Graminae	Seed	Erysipelas	43
125	Papaver somiferum	Ahiphena	Papavarace ae	Seeds	Bruise	48
126	Pedilanth us tithymaloides	Shend/Vi layti-sher	Euphorbiac eae	Latex	Bruise	50, 51, 52, 53
127	Phaseolus trilobus	Mudga	Leguminosa e	Root, whole plant	Erysipelas	43
128	Phragmites maxima	Nalmula	Graminae	Root	Bruise , abscess, erysipelas	43
129	Picorrhiza kurroa	Katuki	Scrophulari aceae	Rhizome	Bruise , erysipelas	44, 45
130	Pinus longifolia	Saralkasta ha	Pinaceae	Resin	Bruise , syphilitic ulcer	44
131	Piper auranticum	Renuka	Piperaceae	Fruit	Erysipelas	43
132	Piper chava	Chavika	Piperaceae	Fruit	Bruise	44
133	Piper longum	Pipul	Piperaceae	Root	Bruise , fistula-in-ano	44, 48
134	Piper nigrum	Marich	Piperaceae	Fruit	Sinuses	44
135	Pisum sativum	Harenu	Verbenacea e	Leaves	Erysipelas, diabetic carbuncle	43
136	Pluchea	Rasna	Compositae	Leaves	Bruise	44

	<i>lanceolata</i>					
137	<i>Plumbago zeylanica</i>	Chita	Plumbagina ceae	Root	Bruise , fistula-in-ano	44, 48
138	<i>Pongamia glabra</i>	Dahar karanja	Leguminosae	Seeds, Leaves	Bruise , septic Bruise	44, 45, 48
139	<i>Pongamia pinnata</i>	Karanj	Fabaceae	Leaves	Bruise	50, 51, 52, 53
140	<i>Premna integrifolia</i>	Ganiari	Verbenaceae	Root	Bruise	45
141	<i>Prunus cerasus</i>	Elabaluka	Rosaceae	Seeds	Bruise	46
142	<i>Prunus puendum</i>	Padmaka stha	Rosaceae	Smaller stem branches	Bruise , diabetic carbuncle, syphilitic ulcer	43, 44, 45
143	<i>Prunus mahaleb</i>	Priyangu	Rosaceae	Root	Bruise , erysipelas, diabetic carbuncle	43, 44
144	<i>Psoralia corylifolia</i>	Bakuchi	Leguminosae	Seeds	Bruise	46
145	<i>Pterocarpus santalinus</i>	Raktachandan	Papilionaceae	Heart wood	Bruise syphilitic wound, syphilitic wound, fistula-in-ano	43, 44, 46
146	<i>Randia dumetorum</i>	Madan	Rubiaceae	Stem root	Bruise	45
147	<i>Rannunculus scleratus</i>	Kandira	Rannunculaceae	Whole plant	Septic ulcer	46
148	<i>Rhus succdeania</i>	Karkatas hringi	Anacardiaceae	Gall	Bruise	45
149	<i>Ricinus communis</i>	Erand	Euphorbiaceae	Latex	Bruise	50, 51, 52, 53
150	<i>Rubia cordifolia</i>	Manjistha	Rubiaceae	Root	Bruise , purulative ulcer, fistula-in-ano, diabetic carbuncle, syphilitic ulcer	43, 44, 45, 48
151	<i>Rumex crispus</i>	Betas	Aristolochiaceae	Whole plant	Bruise , erysipelas,	43

					syphilitic wound	
152	Salix tetrasperma	Jalabetas	Salicaceae	Stem bark, flower	Bruise	47
153	Salmalia malabarica	Shimul	Bombacaceae	Stem bark	Bruise	48
154	Santalum album	Swetchana dana	Santalaceae	Wood	Bruise , erysipelas	43, 45
155	Saraca indica Linn.	Asoka	Leguminosae	Stem bark	Bruise	48
156	Saussurea lappa	Kur	Compositae	Root	Diabetic carbuncle, septic wound, syphilitic ulcer	44, 48
157	Semecarpus anacardium	Bhallataka	Anacardaceae	Root	Bruise , sinuses	46, 47
158	Sessamum indicum	Tila	Pedaliaceae	Seed oil	Bruise	43, 44, 45, 48
159	Shorea robusta	Shala	Dipterocarpaceae	Resin	Bruise	44, 45
160	Sida cordifolia	Swetberela	Malvaceae	Root	Bruise	43, 44, 48
161	Sida spinosa	Chakule	Malvaceae	Root	Bruise , fistula-in-anal	44, 48
162	Spaeranthus indicus	Mundiri	Compositae	Flower	Bruise	43
163	Spirogyra elongate	Shaibal	Algae	Filament	Bruise , erysipelas	43, 44
164	Strebulus asper	Sheora	Moraceae	Root	Bruise	45
165	Swertia chirata	Chireta	Gentianaceae	Stems, leaves	Bruise , septic Bruise	44
166	Symplocos racemosa	Lodhraka	Symplocaceae	Stem bark	Bruise , diabetic carbuncle, sinus, septic wound, syphilitic wound, fistula-in-anal	43, 44, 45, 48
167	Tephrosia purpurea	Sarapunkha	Leguminosae	Whole plant	Bruise	46
168	Terminalia chebula	Haritaki	Combretaceae	Fruits	Bruise , syphilitic	43, 44, 48

					wound, fistula-in-ano	
169	Terminalia raia belerica	Bibhitaka	Combretaceae	Fruits	Bruise , syphilitic wound, fistula-in-ano	43, 44, 48
170	Thespesia populnea Soland.	Palashpi pul	Malvaceae	Fruits, leaves, roots	Bruise	45
171	Tinospora tomentosa	Padmagu lancha	Menisperma ceae	Stem	Erysipelas	43
172	Terminalia chebula	Harda	Combretaceae	Leaves	Bruise	50, 51, 52, 53
173	Tribulus terrestris	Gokshura	Zygophyllaceae	Fruit	Diabetic carbuncle	48
174	Tricosanthus dioica	Palta	Cucurbitaceae	Leaves, stem bark	Bruise , syphilitic Bruise	47
175	Trichodes ma indicum	Surasa	Cucurbitaceae	Root	Bruise	48
176	Trichosanthus tricuspidata	Kaundal	Cucurbitaceae	Fruit	Bruise	50, 51, 52, 53
177	Tridax procumbens	Dagadipa la	Asteraceae	Leaves	Bruise	50, 51, 52, 53
178	Trigonella foenum- graecum	Methi	Fabaceae	Seeds	Bruise	50, 51, 52, 53
179	Vateria indica	Sarja	Dipterocarpaceae	Latex	Bruise , diabetic carbuncle	43, 44, 45
180	Veronia anthelminthic	Somraj	Compositae	Seeds	Fistula-in-ano, diabetic carbuncle	48
181	Vitex negundo	Nishinda	Verbenaceae	Leaves	Maggots in wound, rysipelas, diabetic carbuncle	43
182	Wedelia calendulacea	Bhringaraj	Compositae	Leaves	Sinuses, syphilitic ulcer	44
183	Witahnia somnifera	Ashwagandha	Solanaceae	Tuberous root	Bruise	44, 45

184	Woodfordia fruticosa	Dhataki	Lytheraceae	Flower	Bruise , abscess, diabetic carbuncle	43, 44
185	Zingiber officinale	Sunthi	Zingiberaceae	Rhizome	Bruise	45
186	Myracrodruon urundeuva	bakli, dhau	anacardiaceae	stem	Excision,histopathological	1
187	Carica papaya	Papita	Apocynaceae	fruit	Mus,musculus histological	2

3. DISCUSSION

Bruise treatment is a clinical challenge especially where resources are limited. It therefore important to study and examine all options available with which bruise management may be bettered for the benefit of all. This review is an approach towards the herbal plants having bruise treatment potentials involving the observation, description, and experimental investigation of indigenous drugs and their biologic activities. It is based on botany, chemistry, biochemistry, pharmacology, and many other disciplines that contribute to the discovery of natural products with biologic activity. In spite of the various challenges encountered in the medicinal plant based drug discovery, natural products isolated from plants will still remain an essential component in the search for new medicines. Proper utilization of these resources and tools in bioprospecting will certainly help in discovering novel lead molecules from plants by employing modern drug discovery techniques and the coordinated efforts of various disciplines.

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