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Antimicrobial potential of root part of *Cryptolepis buchanani* (Roem and Schult)

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Abstract
The paper presents the use of *Cryptolepis buchanani* for the treatment of bone fracture by tribal people in East Siang district of Arunachal Pradesh. The information is provided on the basis of personal interview with a local herbal practitioner known as 'Bhejuyai'. Botanical description of the plant with local names, detection and nature of fracture and mode of administration by the herbal practitioner are described in detail.

Keywords: *Cryptolepis buchanani*, bone fracture, traditional medicine, Arunachal Pradesh

1. Introduction
Herbal products may contain a single herb or combinations of several different herbs believed to have complementary and/or synergistic effects. Some herbal products, including many traditional medicine formulations, also include animal products and minerals.
Herbal preparations are obtained by subjecting herbal substances to treatment such as extraction, distillation, expression, fractionation, purification concentration or fermentation. These include comminuted or powdered herbal substances, tincture, extracts, essential oils, expressed juices and processed exudates. Began to appear. In the United States, before the advent of specific pharmaceuticals, herbal medicine was relied upon to treat many illnesses. Development of drugs based on natural products has had a long history in the United States, and in 1991, almost half of the best selling drugs were natural products or derivatives of natural products. There has recently been a resurgence of interest in herbal remedies, and a Reuters/Zog by poll in 2000 showed that 40% of people in the U.S. had tried herbal remedies. In 1998, the U.S. market for natural supplements was over $12 billion in sales and increasing by as much as 10% per year. Herbs such as St. John's Wort, ginkgo, echinacea, and ginseng are among the most popular herbs. In 1999, echinacea was reported to make up 38% of the U.S. market, with ginkgo a close second at 34%.

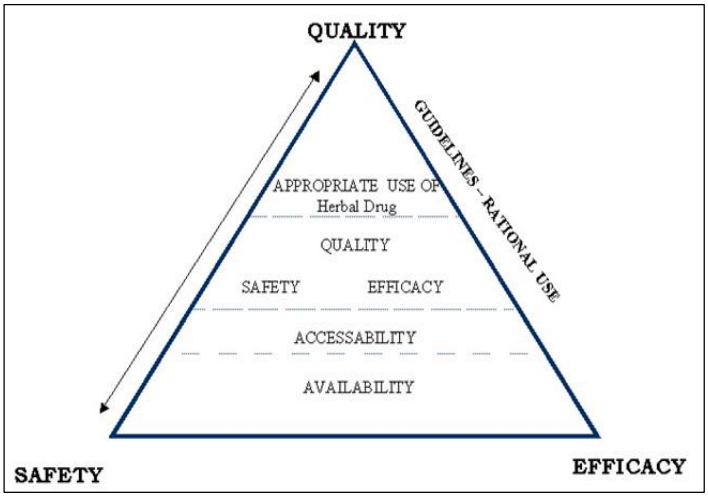

Fig 1: Three pillars of ideal herbal drug therarrational use rational use [5]

Cryptolepis buchanani
(Picture is taken from the site of collection of plant)

2. Distribution
Dhaka, Madhupur, Rajshahi, Jamalpur, Sylhet, Mymensingh and Chittagong Hill Tracts.

3. Pharmacognostic Profile 3
3.1 Taxonomical Classification

Table 1

Scientific Name	Cryptolepis Buchanani
Domain	Eukaryota
Kingdom	Plantae-Plants
Class	Magnoliopsida-dicotyledons
Order	Gentianales
Family	Asclepiadaceae
Genus	Cryptolepis
Botanical Name	Cryptolepis Buchanani Roem & Schult

3.2 Local Name

Table 2

Language	Synonyms	Language	Synonyms
Hindi	Dudhi, Kalabel	Sanskrit	Gopa, Gopasatu
Malyalam	Kalipalvalli, Kattupalvalli	Tamil	Palkoti, Paalkodi
Marathi	Kaoval, Kawavel	Telugu	Adavi, Gunji

3.3 Morphological Characteristics

Table 3

Leaves	Glabrous, Shining Leaves, Climbing Shrub, 7.15 -12.5cm X 3.8cm X 6.3cm size, oblong, Epliptic.
Stem	Cylindrical, branches, Glabrous.
Bark	Adhere Closely to the Woody And Odourless.
Root	Dark Brown or Blackish
Flower	Pale Greenish-Yellow Color
Bracts	Ovate Lanceolate with Scarious Margin.

4. Chemical Evaluation
Plant contains a pyridine alkaloid, buchanamine, a nicotinoyl gluco-alkaloid and triterpenoids. Leaves contain a cardenolide cardiac glycoside, crypyosin, a- and ß-amyrin; four alkaloids, quindoline, cryptolepine, cryptolepine HCl and hydorxycryptolepine, which strongly inhibited the growth of Gram-positive bacteria.

5. Mode of administration
Collected plants are washed thoroughly with clean water for three times. Sometimes, the plant parts collected from the aged plants are soaked in clean water overnight. These are then cut in to small pieces and kept for about two hours for shade drying. Then small pieces are crushed with a grinder locally called ‘Kendunang’ (in Mishing) and finally made into a paste. Small amount (5 ml) of mustard oil is mixed to the paste just before its use. The colour of the paste is normally reddish. For external fractures (the term coined by the herbal practitioner), the paste is first spread out on the apical portion of a banana leaf (40×30 cm) which was previously washed with water and dried in the sun for about half an hour. It is then wrapped on the fractured area (Plate 1) and banded properly with the help of rope made from fibre of the plant locally known as ‘Taling’ (*Corchorus capsularis*) and kept for one week. After one week, the herbal practitioner removes the paste from the injured area and examines the efficacy of the treatment. If needed, he again administers another dosage. For the internal fractures (the term coined by the herbal practitioner), the paste is made as above and instead of mustard oil, about 200 ml of crude milk is added to 100 g of the paste. After proper mixing, it is given orally three times daily for five days.

6. Biological activities of *Cryptolepis buchanani*
It is a very useful plant because of its multiple uses as a traditional medicine, such as anti-diarrheal, anti-bacterial, anti- ulcerative, anti-inflammatory, blood purifier and for lactation in women.

7. Conclusion and Discussion
According to the herbal practitioner, it was observed that the efficacy of the treatment is almost cent per cent. He got good response from all the tribal people belonging to this district. It was also observed that instead of modern orthopedic treatment, people from in and around this area use such type of traditional practice for the treatment of bone fracture. It was noticed that the herbal practitioner conserved the plant species in his homestead garden for timely use. The traditional herbal practitioner does not take any fee from the patient for his service. He only takes a pair of betel nut and one or two rupee coins in the name of God, locally called ‘Araai’ (in Mishing).
Thus, the traditional use of this plant by tribal people for treatment of bone fracture indicates effective medicinal properties of the plant. Therefore, the plant needs thorough screening of its bioactive chemical properties and clinical testing for the reported efficacy.

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