

Plant indicators for agricultural seasons amongst *Pnar* tribe of Meghalaya

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Abstract

The work relates to *Pnar* tribe of Jaintia Hills district, Meghalaya, whose main occupation is agriculture. Even today they depend on plant species as indicators, such as *Butea buteiformis* (Voigt) Grier. & Long, *Castanopsis indica* A. DC., *Castanopsis tribuloides* (Sm.) DC., *Phoenix humilis* Royle ex Becc. & Hook. f., *Pinus kesiya* Royle ex Gord., *Quercus serrata* Thunb., *Schima wallichii* (DC.) Korth. for systematizing steps they followed season wise for achieving the best productivity of rice and other agricultural crops. Each plant indicator is provided with vernacular name, relevant plant parts indicative of agricultural seasons and their significant role in agricultural productivity.

Keywords: Plant indicators, Agricultural seasons, *Pnar* tribes, Meghalaya

Traditional method of rainfall prediction through Almanacs in Ladakh

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Abstract

Farmers in Ladakh (North-eastern part of J&K State) are still following the agronomic practices of crop production based on astrological facts of *Lotho* (Tibetan almanac), yet there is no systematic study or very few ever attempted to see the rationality of the ancient knowledge system. Like Indian Panchang (the religious calendar), the Tibetan *Lotho* also has a mathematical base for predicting the meteorological occurrences. An attempt has been made through this study to check the rationality of rainfall predictions made in *lotho*. The findings were quite encouraging and the rainfall predictions made in *lotho* were found to be going hand-in-hand with the predictions made by Government meteorological departments through modern techniques and procedures.

Keywords: Tibetan astrology, Ladakh, Almanacs, *Lotho*, Weather forecasting, Traditional rainfall prediction method

Traditional Knowledge relating to use of flora and fauna as indicators in predicting annual seasons among *Karbi* tribe of Assam

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Abstract

There exist a sound Indigenous Knowledge System (IKS) among *Karbis* relating to prediction of annual seasons using flora and fauna and physical factors as indicators. Floral characters include leaf fall, formation of new leaves, flowering, fruiting and ripening, formation of tubers, etc. while faunal characters include courtship and mating, egg laying and hatching, aggressiveness, appearance of a particular species and many more. Physical factors comprise of moon, temperature, wind, rainfall, day length, etc. A Folk Calendar consisting of 12 months based on these indicators have been practicing among the people since time immemorial. *Karbi* New Year however, commences from 1st February, which has already received official recognition of the local government, Karbi Anglong Autonomous Council. Floral and faunal and physical indicators are used primarily for *jhum* cultivation such as time of selection of the plot, clearing of forest, burning of slash, tilling the soil, sowing and other activities related with *jhum* and secondly for harvesting forest resources and day-today activities. IKS is fast losing its ground among *Karbis* mainly due to acculturation and destruction of forests, the natural habitat where Indigenous Knowledge was born and evolved and change of habitat from hills to plains.

Keywords: *Karbi*, Biological indicators, Folk Calendar, Annual season prediction, Folk calendar, Traditional knowledge

Prediction of rainfall variation through flowering phenology of night-flowering jasmine (*Nyctanthes arbor-tristis* L.; Verbenaceae) in Tripura

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Abstract

Folk people of Tripura, a small state of Northeast India, rely on their own traditional knowledge of phenological indicators for predicting the weather, to help plan their agroforestry activities and for disaster prevention. One such prediction relates to the phenology of *Nyctanthes arbor-tristis* L., night-flowering jasmine, which helps them to forecast the onset of heavy rainfall. During 2007-2009, a comprehensive study was initiated to document the predictive accuracy of this indicator, through conversations and interviews with village members, observation and reviewing the older literature. The researchers found that the flowering of *Nyctanthes arbor-tristis* is a good indicator of weather lore for the prediction of both short- and long-range precipitation. The information about the prediction of rainfall by observing the flowering phenology was recorded through the interview with village elders. The researchers use interview schedule while interacting with elders. Several small groups of knowledge holders including elder men and women (as focus group) were selected randomly from a wider population of study areas and sampled. A questionnaire was also prepared for knowledge gathering through open conversation and discussion. Prior Informed Consent (PIC) was taken from the knowledge providers time to time.

Keywords: Traditional knowledge, Folk people, Tripura, Phenology, *Nyctanthes arbor-tristis* L., Weather lore, Short & long range rainfall

Presage Biology: Lessons from nature in weather forecasting

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Abstract

The method used by local and indigenous peoples for predicting rainfall and other weather conditions solely on the basis of bio-indicators – the phenology of plants and behavior of animals – is coined as a new term: Presage Biology. Some of these activities of floral and faunal diversity are described in their application to predict oncoming rain, based a literature review as well as personal observations of present author as well as other reference sources pertaining to India and different parts of the world.

Keywords: Plant phenology, Animal behaviour, Weather prediction, Forecasting rain

Plants associated in forecasting and beliefs within the *Meitei* community of Manipur, Northeast India

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Abstract

This paper reports on a total of 10 plant species of different families which are used as indicators in forecasting weather, in predicting natural calamities, or as taboos or signals of bad omens, among the *Meitei* community of Manipur state in North eastern India. These plants belong to dicot (6 species), monocot (3 species) and pteridophyte (single species) and are both cultivated (5 species) and grown wildly (rest 5 species). The four species namely, *Alocasia indica*, *Brassica campestris*, *Hibiscus cannabinus* and *Mangifera indica* are cultivated purely for food purpose while *Platyserium wallichii* is cultivated as decorative pot plant. The species namely, *Quercus serrata* is not cultivated in private lands. This knowledge system is still prevalent among the local people, especially in rural areas.

Keywords: Forecasting, Traditional knowledge, Manipur, Northeastern India

Traditional knowledge, weather prediction and bioindicators : A case study in Mizoram, Northeastern India

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Abstract

The tribal peoples of Mizoram formerly forecasted the weather through applications of long-standing Traditional Ecological Knowledge. In this study, 16 distinct bioindicators for weather forecasting based were documented working with tribal peoples. The bioindicators were based mainly on the recognition of unique situations, the behaviour of insects, birds and mammals, characteristics of plants, and location, timing and patterns of clouds, lightning, wind, moon, sun and stars. The successful application of the forecasting knowledge is based on comparison with past events, good prognosis, close observation and a thorough understanding of the local environment. Community members, cultural leaders and local elders have observed recent anomalies in the weather, with unusual rains and abrupt changes in temperature. Due to this phenomenon, some plant species are changing their growth patterns. This type of Traditional Knowledge has excellent potential for wider application, yet, in Mizoram, as elsewhere, there is a threat to people's livelihoods and bicultural diversity. Today, more than ever, there is an urgent need to document all traditional knowledge and folklore among the diverse ethnic communities before the traditional cultures are completely lost.

Keywords: Biodiversity, Mizoram, Weather forecasting, Traditional Ecological Knowledge, Bioindicators

Plants used as Agricultural seasons indicator by *Mao Naga* tribe, Manipur, India

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Abstract

The paper presents four plants used as an agricultural season indicator by *Mao Naga* tribe of Manipur, India. Agriculture is the main occupation of the tribe and they have a unique way of knowing plantation season for different crops by observing the flowering of some plants. The indicator plants are peach (*Prunus persica*), wild cherry (*P. carmesina*), camel foot (*Bauhinia purpurea*) and dancing girl (*Mantisia spathulata*). The information on plants used as season indicators may help understanding the global warming and climate change in recent years. There is a need for involving interdisciplinary research to unveil the mystery of folklore science for the prosperity of mankind.

Keywords: *Mao Naga* tribe, Manipur, Indicator plants, Agricultural seasons