

The utilization of local chili variety of Saha Isu as toiletries in West Nusa Tenggara

Fitrahtunnisa*, M S Mokhtar and Rahmatullaila

West Nusa Tenggara Assessment Institute for Agricultural Technology, Indonesian Agency for Agricultural Research and Development, Ministry of Agriculture, Jalan Majapahit, Peresak, Narmada, Kabupaten Lombok Barat 83371, West Nusa Tenggara, Indonesia

*E-mail: fit_biotek@yahoo.co.id

Abstract. Chili is commonly used as spice, seasoning, and could help health promoting. Interestingly, a local variety (Saha Isu) from Bima District has been preferred for toiletries material by indigenous people because of beneficial for headache therapy. The study aimed to know the use of a local chili variety of Saha Isu as toiletries by Bimanese. This study is a qualitative research technique which was done by interview on local people/community and observation of Saha Isu variety in Mpuri Village. These chili have been cultivated from generation to generation decades ago and not distributed yet to other places. In this village, chili was used as shampoo and body scrub material by smoothing and mixing it with grated coconut and a little water. The filtered liquid and remaining dregs were used as shampoo and body scrub, respectively. Total pieces of chili used usually in odd numbers depending on to spiciness level accepted and the availability. In addition to man health, this chili is good for pregnant women and after delivering baby to help control their blood pressure. Based on morphology, Saha Isu has strong spicy-aroma of fruit, dark green young fruit and turned to orange on mature fruit. This preliminary observation need further research on biochemical compound and molecular characterization to enrich the reference about Saha Isu information. This traditional knowledge of Saha Isu is important for genetic resources preservation and conservation, and should be a part of activity and responded by institutional participation in Indonesia.

Keywords: Bimanese, toiletries, traditional knowledge, local chili variety, Saha Isu.

1. Introduction

Chili (*Capsicum spp.*) is one of horticultural commodities belonging to berries, genus *Capsicum* (family: Solanaceae). Chili is important on the aspect of food and other aspect, such as for its various benefits of food spicy or seasoning, natural plant color, pharmaceutical ingredient and as sprays for riot control and self-defense. This plant species is well known for its intense organoleptic sensation of hot when consumed. Pungent flavor of chilies is due to a group of closely related alkaloid called capsaicinoids which is only found in the genus *Capsicum*. Several studies have been conducted to examine the effects of chili plants for natural analgesics. Being as medicinal plant, chili is useful to overcome pain, such as rheumatism, thrush, toothache and influenza. Many people also explored chili function for sweat laxative, skin stimulants and increase appetite.



In Indonesia, chili is the second next to nuts and having a high economic value [1]. In one of village called as Mpuri Village, Madapangga Sub-district, Bima District, West Nusa Tenggara Province, chili is used not only for seasoning/spicy on food, but also as an ingredient in toiletries, such as shampoo and body scrub. This traditional knowledge has been known and transferred from generation to generation for more than hundreds years ago. It is noted that a specifc local chili variety commonly called “Saha Isu”, is used its benefit for shampooing. Therefore, this qualitative research is important to be conducted to find out how this genetic resources Saha Isu is closely related to the local wisdom of the local community.

2. Materials and methods

All information and data collected in this study was obtained by interviewed local community and observation of the local chili variety Saha Isu in Mpuri Village, Madapangga Sub-district, Bima District, West Nusa Tenggara (NTB). Interviews were carried out using the snowball sampling method, which used a small number respondents for initial determination and larger sample size as needed. In the beginning, one or two samples of respondents who considerably know well about the issue of Saha Isu to be used as toiletries materials were chosen. If the two previously determined respondents could not provide incomplete information, then other people is considered to be more knowledgeable and can complete the data needed were chosen as. In addition, of morphological characters of the Saha Isu plant was observed in the village.

3. Results and discussion

3.1. Traditional knowledge of Saha Isu in Bima

Most people know that chili is commonly is used as a seasoning/spicy for cooking. In Indonesia, only a few people take advantage of the chili for other purpose related to human health. The indigenous people and local community of Bimanese in West Nusa Tenggara Province has a unique shampooing habit. People in other areas sometimes used natural materials such as coconut milk, olive oil, yoghurt, lemon etc. for toiletries like shampooing. While Bimanese women, particularly housewives, have used chili for shampooing their hair. This is an old habit that has been preserved from generation to generation, suggesting that the value of indigenous/traditional knowledge should be respected.

In an interview with the local people of Mpuri Village, they informed that shampooing using chili was a tradition and at the same time as the medicines for headaches, a vision problems and other aches. They prefer shampooing using this local chili instead of seeing a doctor because natural remedies are believed to be more effective and safe for long use. The tradition of shampooing using chili is maintained by Bimanese woman (pregnant woman, postpartum women, and even any women after long journey). This chili shampooing habit is not only done by women, but also by men.

In addition to chili shampooing, the Bima community is also using it as traditional scrubs from chili pulp with a mixture of various natural spices. This is thought to be influenced by capsaicin content in the Saha Isu. Capsaicin is the substance found in chili which is responsible for its spicy and hot flavor [2]. Moisture content does not play a vital role for the hotness (capsaicin content) of peppers. Capsaicin content of *Capsicum* peppers is dependent of variety and not the moisture or fleshy nature [3]. Capsaicin is effective for treating neuropathic pain and pain associated with conditions such as osteoarthritis, rheumatoid arthritis and psoriasis [4]. Capsaicin has shown potential benefits in managing headaches, including cluster and migraine headaches [5] and to treat the pain [6].

For the first time, people are reluctant using chili shampoo for not rinsing directly. The effect of hot sensation will be overcome by rinsing directly. This shampooing habit is done once every two weeks or every month. Native people reported that this habit become an addiction to them, as when they lessen the application, the disease symptoms such as dizziness and vision problem start appearing. Treatment like this is very favored by women in Bima because besides being natural, it is also less costs for treatment. Based on their experience, after shampooing and applying body scrub with chili, the body feels for more fresh and energetic like it has been injected with vitamins or analgesic

compounds. This condition might be due to the presence of antioxidants and other beneficial compounds in chili.

A number of studies have supported chili to be benefited as pharmaceuticals. Chili extract at a concentration of 0.02–2 mg/ml ethanol contains antioxidant of IC₅₀ 0.57 mg/l [7]. Total flavonoid content in *C. annum* (bell pepper), *C. annum* (chili pepper), and *C. frutescens* (chili padi) was compared, of which the highest flavonoid content among these plants were *C. frutescens* with total flavonoids of 0.551 μ mol Q/g [8]. Chemical content such as flavonoids are found in extracts of chili which have antioxidant activity against free radicals [9].

3.2. Home-made shampoo and scrub from chili

Chili paste is made by grinding into fine texture and mixed with coconut milk to make smooth texture. The chili and coconut milk mixture were put in open area overnight in room temperature and ready directly to use for shampooing. Shampooing using chili can be done before or after bathing. Before washing with fresh water, people usually allow it on their hair for next three or four days in order to get sensation of heat and positive effects. The solid waste/pulp from shampoo (chili and coconut) can be used as a body scrub. The chili body scrub is applied by rubbing the pulp on the the desired or symptom area. This is believed to reduce pain. According to Barbano et al. [4], capsaicin effects have been observed on surgical neuropathic pain, postherpetic neuralgia and chronic peripheral polyneuropathy. Bimanese local community experience that the effect of Saha Isu for toiletries is specific for each chili varieties. This information indicates that this local variety of Saha Isu may have specific compounds to allow its uniqueness and needs further exploration of its further benefits as pharmaceuticals.

Chili pepper is also known for rich in ascorbic acid content, which is very essential antioxidant for human nutrition and proper functioning of body [10–11]. Human body can not synthesize vitamin C endogenously, so it is an essential dietary component [12]. Vitamin C is essential in neutralizing free radicals in the body, assimilation of iron, healing of wounds, helps to build skin collagen and defense against bacterial and viral infection [13].

3.3. Morphological characters of chili variety of Saha Isu

In general, the plant of Saha Isu local variety has an appearance similar to the cayenne pepper (Figure 1), but one of the easiest things to distinguish it from other varieties is the fruit color. The ripened fruit is orange, and the more mature the fruit, the more intense the orange color (Figure 2). Based on Shaha et al. [14] study, the color of cayenne pepper was affected the flavonoid content, in which yellow chili has the highest flavonoid and higher antioxidant than green or red one. The morphological characters of Saha Isu is presented in Table 1. This chili is well adapted on 90–120 m above the sea level (m asl). This variety also has been registered to Center for Plant Variety Protection and Agriculture Licencing as a local variety of Bima District, West Nusa Tenggara Province. This local variety become to be recognized as a form of reliable knowledge developed through generations by native peoples in Bima with linked with their lands which have equal status with scientific knowledge.

Saha Isu is cultivated in Mpuri Village and has long been used by Bimanese indigenous people and local community. Surprisingly, the growing area of Saha Isu is limited only in Madapanga Sub-district, as a result its price is very expensive, approximately IDR 2,000.00 per 3 pieces of fruit. This variety is known to be susceptible to pests and diseases, consequently, only a few farmers cultivate it. The main reasons of farmers keep cultivating Saha Isu is in addition to increasing their income and using it for toiletries, and to preserve and conserve of local genetic resources. Thus, this indigenous and traditional knowledge of Saha Isu for toiletries should be managed as traditional resource right. The benefit of their knowledge and tradition must be gained by indigenous Bimanese community.

Table 1. Description of a local chili Saha Isu originating from Bima District.

Character	Description
Plant	
Plant height	30–50 cm
Days to flowering	40 days
Days to harvest	80 days
Stem	
Cross section shape	Cylindrical
Stem diameter	1.25 cm
Stem color	Brownish-green
Leaf	
Leaf shape	Lanset
Leaf color	Dark green
Leaf length	7–11 cm
Leaf width	2–2.5 cm
Flower	
Flower shape	Rotate
Color of petal	Green
Color of crown	White
Color of stigma	Yellowish green
Color of stamen	Yellow
Fruit	
Fruit shape	Hornshaped
Fruit tip shape	Spiky
Fruit length	4.5–7 cm
Fruit diameter	0.8–1.5 cm
Color of young fruit	Dark green
Color of ripened fruit	Orange
Fruit skin thickness	0.9–1.3 mm
Fruit flavor	Spicy
Fruit position	Hanging
Depth of grooves in the locul	Deep
Number of locul	Dominant two
Fruit base curcature	Exist
Depth of idantation	Shallow
Capcaisin in placenta	Exist
Weight per fruit	1.14–2.5 g
Seed	
Seed shape	One end rounded, other end tapered
Seed color	Pale yellow
Weight of 1,000-seed	10.4 g
Thickness	1 mm
Peel color	Yellow



Figure 1. Performance of plant of Saha Isu.



Figure 2. Performance of fruit of Saha Isu.

4. Conclusions

The traditional knowledge about Saha Isu used for shampoo and body scrub could not be separated from local wisdom of the Bimanese community. This Saha Isu is a part of the preservation of potential genetic resource of local chili variety which has specific morphological characters. The knowledge of local chili variety utilization to relieve any pain symptoms and blood pressure control has been transferred from generation to generation in Bima.

5. Acknowledgements

Authors thank to all respondents in Bima District who contributed to provide all information about Saha Isu. Author also would like to express our a high appreciation to Ms. Suryadartin who arranged and facilitated the qualitative research technique.

6. References

- [1] Rompas J 2001 Efek isolasi bertingkat *Colletotrichum capsici* terhadap penyakit antraknosa pada buah cabai *Prosiding Kongres Nasional XVI dan Seminar Ilmiah* (Bogor: Perhimpunan Fitopatologi Indonesia) p 163
- [2] Milind P and Sushila K 2012 A hot way leading to healthy stay *Int. Res. J. Pharm.* **3** 21–5
- [3] Ekwere, Mercy R, Udoh and EE D 2016 Extraction and comparative analysis of moisture and capsaicin contents of *Capsicum* peppers *J. Pain Relief* **5** 268

- [4] Barbano R, Herrmann D, Hart-Gouleau S, Pennella-Vaughan J, Lodewick P and Dworkin R 2004 Effectiveness, tolerability, and impact on quality of life of the 5% lidocaine patch in diabetic polyneuropathy *Arch. Neurol.* **61** 914–8
- [5] Fusco B, Marabini S, Maggi C, Fiore G and Geppetti P 1994 Preventive effect of repeated nasal application of capsaicin in cluster headache *Pain* **59** 321–5
- [6] Ellison N, Loprinzi C, Kugler J, Hatfield A, Miser A, Sloan J, Wender D, Rowland K, Molina R, Cascino T, Vukov A, Dhaliwaland H and C G 1997 Phase III placebo–controlled trial of capsaicin cream in the management of surgical neuropathic pain in cancer patients *J. Oncol.* **15** 2974–80
- [7] Rahiman S, Tantry B and Kumar A 2014 Variation of antioxidant activity and phenolic content of some sommon home remedies with storage time *Afr. J. Tradit. Complement. Altern. Med.* **10** 124–7
- [8] Rahim R and Mat I 2012 Phytochemical contents of *Capsicum frutescens* (chili padi), *Capsicum annum* (chili pepper) and *Capsicum annum* (bell pepper) aqueous extracts *Int. Conf. Biol. Life Sci.* **40** 164–7
- [9] Yunita 2012 *Uji Aktivitas Antioksidan Ekstrak dan Fraksi Ekstrak Daun Cabe Rawit (Capsicum frutescens L.) dan Identifikasi Golongan Senyawa dari Fraksi Teraktif (Antioxidant Activity Test of Hot Short Pepper Leaves [Capsicum frutescens L.] Extracts and Extract Fractions and Identification of Compounds Group of the Most Active Fraction)* (University of Indonesia)
- [10] Igwemmar N, Kolawole S and Imran I 2013 Effect of heating on vitamin C content of some selected vegetables *Int. J. Sci. Technol. Res.* **2** 209–12
- [11] Mohammed G H 2013 Effect of seamino and ascorbic acid on growth, yield and fruits quality of pepper (*Capsicum annum* L.) *Int. J. Pure Appl. Sci. Technol.* **17** 9–16
- [12] Li Y and Schellhorn H 2007 New developments and novel therapeutic perspectives for vitamin C *J. Nutr.* **137** 2171–84
- [13] Medina-Juárez L, Molina-Quijada D M, Del Toro-Sánchez C, González-Aguilar G and Gámez-Meza N 2012 Antioxidant activity of peppers (*Capsicum annum* L.) extracts and characterization of their phenolic constituents *Interciencia* **37** 588–93
- [14] Shaha R, Rahman S and Asrul A 2013 Bioactive compounds in chili peppers (*Capsicum annum* L.) at various ripening (green, yellow and red) stages *Sch. Res. Libr. Ann. Biol. Res.* **4** 27–34