

Ailments and application of pleurotus tuber-regium (ptr) Among indigenes of two regions in ghana.

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ABSTRACT

In West Africa, *Pleurotus tuber-regium* (PTR) is considered a delicacy and its fruitbodies as well as its sclerotia serve as valuable ingredients in the preparation of soups. Traditionally in Ghana, however, *Pleurotus tuber-regium* (PTR) is known to possess medicinal values and have been used by traditional herbal doctors to cure illnesses such as underweight in babies, asthma and high blood pressure among others. A survey was carried out in the Volta and Brong Ahafo Regions of Ghana to gather information on local knowledge and its utilization. Structured questionnaires were administered to two hundred households from ten villages in each region. Analysis of the survey revealed that eleven and twelve different ailments and their modes of application were noted in the Volta and Brong Ahafo regions respectively. Some of the ailments named in the Volta Region were Heart burn (20%), Stomach ulcer (1%) and Asthma (1%) among others, whilst in the Brong Ahafo, breast cancer (4%), High blood pressure (4%), Heartburn (1%) etc. were named. It was also observed that despite the fact that traditionalist from both regions use the sclerotia for the same ailment; their mode of application was different. The main respondents for this information were the elderly within the age group 61 to 70 years. Evaluation of the potency of the fruitbody as well as the sclerotia of this fungus is recommended.

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Key words: *Mushrooms, sclerotium, Fruitbody, Pleurotus tuber-regium (PTR), ailment.*

Introduction

Mushrooms are popular and widely consumed in most communities in Ghana. Various species found in the forest and countryside of Ghana such as *Termitomyces* (Termite mushroom), *Pleurotus* (oyster mushroom), *Pholiota*, *Lepiota* (Shaggy parasol), *Volvariella* (Oil palm mushroom) and *Coprinus* (Ink cap) grow freely on anthills, tree stumps, farmlands, forest litter and other lignocellulose. In Ghana wild mushrooms are always abundant during the rainy season and are collected for home use and sale (Obodai, 1992). Recently exotic tropical species of *Pleurotus* such as (*P. pulmonarius*, *P. ostreatus*, *P. eous*, *P. cystidiosus*) and *Auricularia* (*A. polytricha*, *A. auricula*) have been introduced into Ghana (Obodai, 1992).

Pleurotus tuber-regium had been suggested to be a *Lentinus*, *Lentinus tuber-regium* (Fr) Fries, a view further supported by Pegler (1983) primarily due to the dimitic arrangement of hypha and the overall tough flesh of the fruitbody. Recent molecular studies by Isikhuemhen et al (2000) shows that this species clearly belongs to the genus *Pleurotus*.

Sclerotia are globose to ellipsoid shape, whitish to dingy beige on sterilized or pasteurized substrates, darkening with age and dark brown to nearly black when developing in contact with soils. The initial primordia develop from the sclerotia as a spike-like proboscis, narrow at the apex and broad at the base. Once several inches high, a fluted cap emerges, and the stem develops a coating of darkened fibrils. The cap, centrally attached to the stem is umbilicate, with decurrent gills and with a margin, which is initially inrolled at first. The stem is scabrous with brownish fibrillose remnants. Quickly maturing, this mushroom can achieve considerable size, up to 10 inches (25cm) in diameter (Staments, 2000).

Materials and Methods

Study Area

Samples of *Pleurotus tuber-regium* were collected from farms around Techiman in the Brong Ahafo Region and Liate Wote in the Volta Region of Ghana. The Brong Ahafo region has a territorial size of 39,557 square kilometers. The Brong Ahafo Region has temperatures around 23.9°C (750F) and with a double maxima rainfall

pattern. Rainfall ranges from an average of 1000mm in the northern parts to 1400mm in the southern parts. The region has two main vegetation types the moist semi deciduous forest, mostly in the southern and southeastern parts and the guinea savannah woodland, which is predominant in the northern and northeastern parts of the Region (ghanadistricts.com, 1/09/06).

The Volta Region’s vegetation can be divided into three, reflecting the rainfall distribution and the altitude. These are the moist semi deciduous forest, savannah and mountain vegetation. Hohoe District is in the west semi-equatorial climatic zone and covers an area of 1,172 square kilometer. Temperatures are around 23°C (ghanadistricts.com, 1/09/06).

Administration of Questionnaire

a. Sampling

One hundred structured household questionnaires were administered at each of the two Regions. The choice of the study area was based on the history of mushroom consumption of the indigenous people, although living among them are settlers. The questionnaire was designed to obtain information such as the following:

- Name of town
- Sex of respondent
- Age of respondent
- Education level of respondent
- Kinds of mushroom available
- Knowledge of Pleurotus tuber-regium

Results

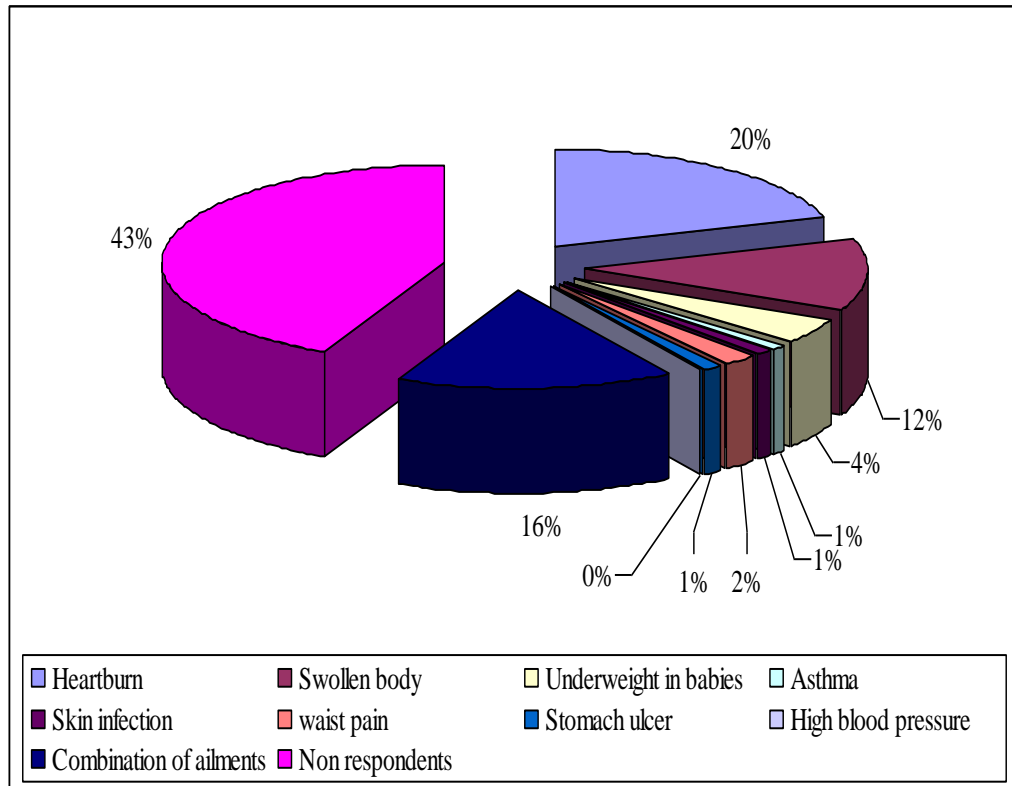


Figure 1 a. Respondents to ailments in the Volta Region

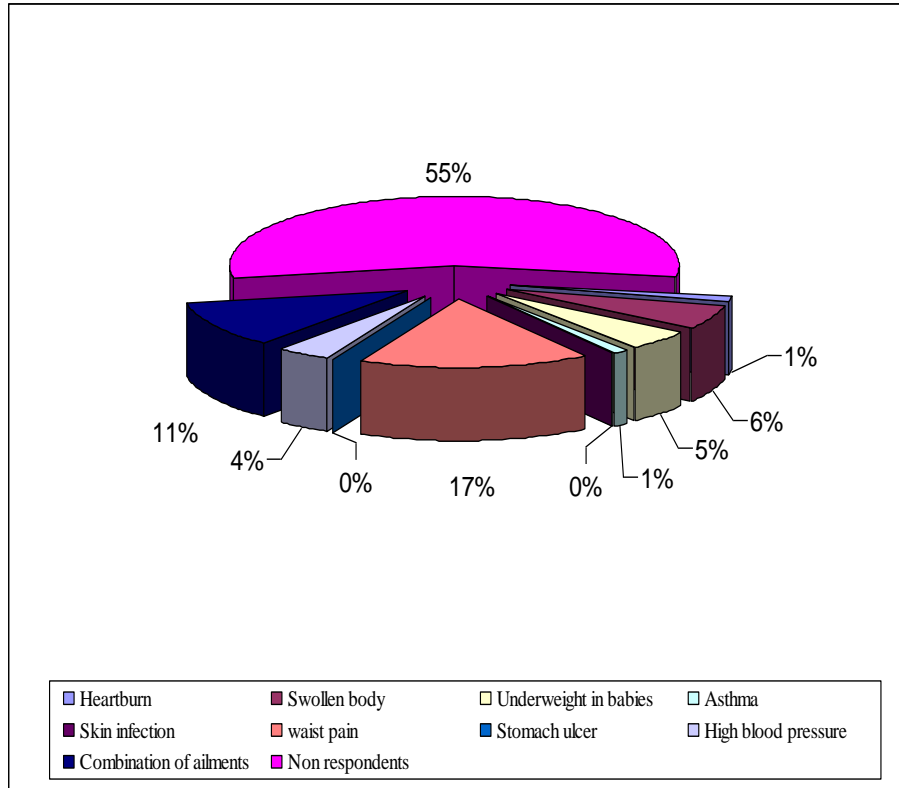


Figure 1b. Respondents to ailments in the Brong Ahafo Region

Table 1. List of ailments known to be cured by the application of pleurotus tuber-regium

Volta Region		Brong Ahafo Region	
Ailment	Treatment	Ailment	Treatment
1. Heart Pains	Grind, mix with honey and drink/grind and put in alcohol and drink/cut into pieces and chew with ginger.	1. Stomach Ulcer	Grind with other herbs, put in water and drink
2. Boils	Grind and smear on the affected part/ grind and mix with palm oil and place on boil.	2. Piles	Grind together with cocoyam leaves and insert.
3. Measles	Grind and smear on the body alone or mixed with shear butter.	3. Headaches	Mix with other herbs in water and drink
4. Stomach Ulcer	Grind and put in alcohol before drinking	4. Skin disease	Grind and mash with water and smear on body
5. High blood pressure	Mix with salt before drinking	5. Breast cancer	Grind and smear all over breast.
6. Sore Throat	Chew	6. Elephantiasis	Grind and mix with other herbs, then smear on affected part
7. Waist pain	Grind and insert in anus	7. Rheumatic pain	Mash with water and smear at joints
8. Skin Infection	Grind and smear on body/ cut into piece, boil in water and drink.	8. Loose stool in children	Mash with salt and water and drink
9. Asthma	Grind and mix with honey/ cook with crab and drink	9. Under weight in babies	Grind and mix with white clay and smear all over body
10. Underweight in children	Grind and smear on body	10. Convulsion	Grind and use in soups or stew/grind in water and smear on body
11. Convulsion	Grind and smear on the body	11. Vigour and strength	Put whole in bathing water
		12. Hypertension	Grind and mix with shear butter and smear over body

Note: This information was given by most of the aged respondents.



Figure2. Sclerotium (showing sporophore) collected from under the mountain afadzato in the volta region (4.6kg) x0.25

Discussion

Tables 1 shows detail of the various ailments the sclerotia of *Pleurotus tuber-regium* is known to treat as claimed by respondents from the Volta and Brong Ahafo Regions. This information was provided by respondents in the age group 50 years and above. These respondents claim the knowledge of the medicinal values of the *Pleurotus tuber-regium* was passed down to them by their parents and in some cases the herbalists. Some respondents claimed they do not use the fruitbody or the sclerotia of *Pleurotus tuber-regium* for the preparation of meals, but they only use the sclerotia to cure certain ailments as described in Tables 1. Some of the ailments respondents claimed the sclerotia of *Pleurotus tuber-regium* could cure includes the following asthma, headache, underweight in babies, elephantiasis, heartaches, rheumatism, breast cancer, and measles among others. Respondents that claim they knew the sclerotia had nutritional values and were used in the preparation of meals could not explain how it was applied. On the contrary in Nigeria as reported by Akpaja et al. (2003) the fruitbody and the sclerotia are used in the preparation of stews and soups (as thickeners) as well as in the cure of ailments such as asthma, cough and obesity.

Conclusion

The response gathered from the questionnaire administration in both the Volta and Brong Ahafo Regions, showed that *Pleurotus tuber-regium* had medicinal values and was used to cure a lot of ailments

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