

Research Article

TRADITIONAL KNOWLEDGE ON WILD FOOD PLANTS IN DOONG VILLAGE, TAN TRACH COMMUNE, BO TRACH DISTRICT, QUANG BINH PROVINCE, NORTH CENTRAL VIETNAM

¹Cuong Huu Nguyen, ²Quyet Thanh Phan, ¹Hai Xuan Cao, ¹Quang Van Nguyen and ¹Doi The Bui

¹Vietnam National University of Forestry, 21 Street, Xuan Mai, Chuong My, Hanoi, Vietnam ²Quang Binh university, 312 Ly Thuong Kiet Street, Bac Ly, Dong Hoi, Quang Binh, Vietnam

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Abstract

The purpose of the study was to document the traditional wild food plants used by tribal people in Doong village, Tan Trach commune. A total of 46 species were documented as wild plants used for food purposes. Among those species, 46 species are herbs followed by 21 trees, 7 shrubs, 10 herbs and 8 climbers. The present study accentuates the significant role of ethnobotanical researches, which needs to be documented by the extraction of traditional knowledge pertaining to the use of plants by future generations. The study could contribute significantly to Government policies to improve food security in tribal areas and in the improvement of wild vegetable status, whose potential as sources of nutrition is currently undervalued.

Keywords: Edible plants, Quang Binh, Traditional use, Vietnam, Wild plants.

INTRODUCTION

The area of Tan Trach commune lies at 17°26'52"N and 106°16'33"E and includes territory over 35.425,71 ha. It is located in the southwestern part of Bo Trach District of Quang Binh Province in North Central Vietnam. The territory of Tan Trach District is a hilly area with dominating elevations up to 424 m a.s.l. with a tropical climate, annual precipitation 2,000-2,500 mm, high humidity (above 65%), annual mean temperature 20°-32°C. The coldest month is January with temperatures from 19-22°C and the hottest month is July, August with temperatures from 25-36°C. Diverse natural conditions lead to the formation of various forest types with very rich species composition. The area is covered by 78% forest cover of its total geographical area and these forest harbors diversity flowering plant species. In our days ethnic groups: Bru - Van Kieu (92%), Kinh, or Viet (8%) inhabit Tan Trach area (Tan Trach commune, 2021). Since immemorial time they have been dependent on forests for their livelihood and everyday activities. For a long time they accumulated huge traditional knowledge, which they passed on from generation to generation (Yoshitaka and Nguyen, 1997; Nguyen and Yoshitaka, 2007). This knowledge is based on their needs, instincts, observation, trial and error and long experiences (Bui, 1986; Nguyen and Bui, 1994). Traditional knowledge is providing them with food security and materials for shelter, ritual, and healthcare system (Beer, 1996). Traditional wild edible plant products in Doong Village are used mostly as soup, boiled, condiment, jelly, or eaten as fresh or boiled vegetables (Tan Trach commune, 2021; Yoshitaka and Nguyen, 1997; Nguyen and Yoshitaka, 2007; Bui, 1986; Nguyen and Bui, 1994; Beer, 1996; Ogle, 2001; Ogle et al., 2003; Prosea, 1992 & 1993).

*Corresponding Author: Doi The Bui

Vietnam National University of Forestry, 21 Street, Xuan Mai, Chuong My, Hanoi, Vietnam.

METHODS AND MATERIALS

At each time of visit, the different places were chosen to search for the wild food plants used by local people for different forms of their traditional livelihoods (in the territory of Doong village). The information was accrued after discussions with several tribal persons, the village head, older women, and other local informants. Repeated interviews through questionnaires were made in different villages to authenticate the information. Thirty families (key informants) of different age groups (between the ages of 15-58 years old) were chosen as the model groups for the study. Repeated interviews through questionnaires were made in different groups to authenticate the information. The collected plant specimens were identified for their names through the available relevant literature reported by Averyanov et al. (2020), Nguyen et al. (2021) Pham (1991-1993), Prosea (1992 & 1993), Suk et al. (2005), Tran (1995), and Yoshitaka et al. (2018). Plants (or their parts) were photographed and used for the preparation of the voucher herbarium specimens following the standard herbarium technique. These specimens were deposited in the herbarium of Vietnam National University of Forestry (VNF) and Quang Binh University (QBU).

RESULTS AND DISCUSSION

Edible wild plants as a food resource in Doong village were investigated in this study. As result, of the study, it was detected that different parts of 46 plant species from 37 families were consumed for food purposes in the area. We have made face-to-face interviews to collect ethno botanical information. Local names, life forms, used parts, methods of preparation, and traditional uses were recorded through these interviews (Table 1). Data analysis (Table 1) shows that 46 species of wild edible plants in Doong village belong to 37 families. The largest families are Euphorbiaceae (includes 4 species, occupied 9.6% of all recorded species), Anacardiaceae,

Table 1. Wild edible plants used by people from different ethnic groups in Doong village

Actinitiscese Surray archarph Wall Diong dio bic Shub Fruits Ripe fruits are edible Anacardiaceae Chorerspondus ardians' (Roch) B L Burtt Trice Fruits Ripe fruits are edible Ripe fruits are edible Anacardiaceae Caneella sistica (L) Uh Rau må Herb Leaves, shoots Leaves are cocked a soury with pork (abiter) hasts) Aracaccae Careella sistica (L) Uh Shufter happelypila (L) Fordin Chin Tree Fruits Ripe fruits are edible Leaves are cocked a sour onfinent Accaccae Comparing muta Warm Mode Shufter Fruits Schufter happelypila (L) Fordin Schufter happelypila (L) Fruits Schufter happelypila (L) Schufter happelypila (L) Schufter happelypila (L) Fruits Schufter happelypila (L) S	Family	Latin name	Local name	Habit	Utilized part	Indigenous uses
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Amenanization of a phance optimization of Labora Lab	Anacardiaceae	Choerospondias axillaris (Roxb.) B.L.Burtt	Dâu da xoan	Tree	Fruits	Ripe fruits are edible (sweet-sour tasting, cooling)
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Dilleniaceae ElacocarpaceaeDillenia heteroscepala Finet et Gagnep ElacocarpaceaeLong bång ElacocarpaceaeTree FruitsFruits FruitsRipe fruits are etaten raw or cooked as sour condiment with fish Ripe fruits are etaten raw or cooked as sour condiment or eaten raw (a sour taste)Euphorbiaceae EuphorbiaceaeBaccaurea cauliflora Lour.Me ring Diu da dat TreeTreeFruits FruitsYoung leaves and flowers are cooked as our condiment or eaten raw (a sour taste)Euphorbiaceae EuphorbiaceaeBaccaurea cauliflora Lour.Diu da dat Diu da dat TreeTreeFruits Ripe fruits are edibleHypericaceae Cratosylin formosun (lacq.) DyerThán haghn TreeTreeLeaves LeavesYoung leaves are eaten raw (a geeper taste)LauraceaeLisea cubeba Pers.Mâng tang ShrubShrubFruits FruitsYoung fruits are cooked as spicy condiment (a peeper taste)MenispermaceaeCissampelos andromorpha DC.Tiết dêClimber SingLeaves LeavesLeaves are eaten raw (a bitterish taste)Moraceae MyrsinaceaeFicus arcendus L Musa cauminate CollaSing ChuôiShrubFruits FruitsRipe fruits are eaten raw or cooked soup with pork Musa cauminate CollaMyrsinaceae MyrsinaceaeMesa perfaria (Lour.) Mer.Sing ChuôiTreeLeaves Leaves, fruitsYoung leaves an eaten raw or cooked soup with pork Musi are edibleMissaceae MyrsinaceaeMesa perfaria (Lour.) Mer.Don nemShrub ShrubFruits are edibleOpiliaceae Polygoname Polygoname<	Dilleniaceae	Dillenia ovata Hook.f. & Thomson	Sổ	Tree	Fruits	Young fruits are cooked as sour condiment or eaten raw (a sour taste)
Eleocarpacee Elaocarpace Elaocarpacee Elaocarpacee Elaocarpacee Pruits Ripe fruits are edible Euphorbiaceae Phyllanthus emblica L. Me ring Tree Fruits Young fruits are cooked as sour condiment or eaten raw (a sour taste) Euphorbiaceae Saccaurea cault/fora Lour. Dâu da dât Tree Fruits Ripe fruits are edible Concataceae Greaturae Greaturae Caturaeta Lisea cubeba Pers. Dây gân Climber Fruits Ripe fruits are edible (a sweet taste) Hypericaceae Cratoxylum formosum (Jacq.) Dyer Thánh nganh Tree Leaves Young leaves are caten raw (a bitterish taste) Menispermaceae Lisea cubeba Pers. Mâng tang Shrub Fruits Young leaves are eaten raw, ripe fruits are edible (a sweet taste) Moraceae Ficus aracemosa L Sung Tree Leaves Young leaves and fruits are edible (a sweet taste) Moraceae Moraceae Sung Tree Leaves Young leaves are eaten raw or cooked as sour condiment Nepe fruits are edible (a sweet taste) Myrsinaceae Musceae Musa case Colla	Dilleniaceae	Dillenia heterosepala Finet et Gagnep	Lọng bàng	Tree	Fruits	Ripe fruits are eaten raw or cooked as sour condiment with fish
EuphorbiaceaePhyllanthus emblica L.Me rüngTreeFruitsYoung Initis are cooked as sour condiment or eaten raw (a sour taste)EuphorbiaceaeBaccaneae cauliflora Lour.Did d ditTreeFruitsRipe fruits are edibleEuphorbiaceaeBischofia javanica BlumeNhôiTreeLeaves, flowersYoung leaves and flowers are cooked soup with porkEuphorbiaceaeBischofia javanica BlumeNhôiTreeLeavesYoung leaves are eaten rawGnetaceaeGnetaceaeGrataxeaeCilmberFruitsRipe fruits are edible (a sweet taste)LauraceaeLitsea cubeba Pers.Mang tangShrubFruitsYoung leaves are eaten raw (a bitterish taste)Moraceae <i>Sicus andromorpha</i> DC.Tiét déClimberLeavesYoung leaves are eaten raw (a bitterish taste)Moraceae <i>Ficus auriculata</i> Lour.VaTreeLeavesYoung leaves are eaten raw (a bitterish taste)Moraceae <i>Ficus auriculata</i> Lour.VaTreeLeavesYoung leaves are eaten raw (a bitterish taste)Moraceae <i>Ficus auriculata</i> Lour.VaTreeLeavesYoung leaves are eaten raw (a bitterish taste)Moraceae <i>Ficus auriculata</i> Lour.RuôiShrubFruitsRipe fruits are edible (a sweet taste and good flavor)Moraceae <i>Ficus auriculata</i> Lour.RuôiShrubFruitsRipe fruits are edible (a sweet taste and good flavor)Moraceae <i>Ficus auriculata</i> Lour.RuôiShrubFruitsRipe fruits are edibleM	Elaeocarpaceae	Elaeocarpus griffithii (Wight) A. Gray	Côm tâng	Tree	Fruits	Ripe fruits are edible
EuphorbiaceaeSauropus racemosus BeilleRau ngöt ring Bu da dåShubsLeaves, flowers Leaves, flowersYoung leaves and flowers are cocked soup with pork Ripe fruits are edibleEuphorbiaceaeBischofia javanica BlumeNhôiTreeLeavesYoung leaves are eaten rawGnetuaeGinetum montanum Markgr.Dây gắmClimberFruitsRipe fruits are edible (a sweet taste)LauraceaeLitsea cubeba Pers.Mân gangShrubFruitsYoung leaves are eaten raw (a bitterish taste)MenispermaceaeCissampelos andromorpha DC.Tiết dêClimberLeavesYoung leaves are eaten raw, ripe fruits are edible (a sweet taste)MoraceaeFicus auriculata Lour.VáTreeLeaves, fruitsYoung leaves are eaten raw (a bitterish taste)MoraceaeSicus apper Lour.RuôiHerbShoubFruitsRipe fruits are edible (a sweet taste and good flavor)MoraceaeSicus apper Lour.RuôiHerbShoutbFruitsKipe fruits are edibleMyrsinaceaeMusa acuminate CollaChuôiHerbShoots, flowersShoots, and flowers are eaten rawMyrsinaceaeMassa perlaria (Lour.) Merr.Don nemShrubFruitsRipe fruits are edibleOlacaceaeExployedual sub-shoots, Alton plassk.SimShrubFruitsRipe fruits are edibleOlacaceaeBichonyatus omentosa Alton plassk.SimShrubFruitsRipe fruits are edibleOlacaceaePholomytus iomentosa Alton plassk.SimShrubFruits <td>Euphorbiaceae</td> <td>Phyllanthus emblica L.</td> <td>Me rừng</td> <td>Tree</td> <td>Fruits</td> <td>Young fruits are cooked as sour condiment or eaten raw (a sour taste)</td>	Euphorbiaceae	Phyllanthus emblica L.	Me rừng	Tree	Fruits	Young fruits are cooked as sour condiment or eaten raw (a sour taste)
Euphorbiaceae Baccaurea caulifora Lour. Dáu da dât Tree Fruits Ripe fruits are edible Euphorbiaceae Bischofig avanica Blume Nhôi Tree Leaves Young leaves are eaten raw Gnetaceae Gnetum montanum Markgr. Dây gâm Climber Fruits Ripe fruits are edible (a sweet taste) Hypericaceae Cratoxylum formosum (Jacq.) Dyer Thain nganh Tree Leaves Young leaves are eaten raw Menispermaceae <i>Lisea cubeba</i> Pers. Mâng tang Shué Fruits Young furits are coubde as spicy condiment Moraceae <i>Ficus auriculata</i> Lour. Vá Tree Leaves Leaves are caten raw, ripe fruits are edible (a sweet taste and good flavor) Moraceae Streis racemosa L. Sung Tree Leaves, fruits Ripe fruits are edible Nomers are could as and out and to the provide as and could as an out could as and could as and the provide as and could as and	Euphorbiaceae	Sauropus racemosus Beille	Rau ngót rừng	Shrubs	Leaves, flowers	Young leaves and flowers are cooked soup with pork
EuphorbiaceaeBischofia jarvanica BlumeNhộiTreeLeavesYoung leaves are eaten rawGnetaceaeGretur montaunu Markgr.Dây gắmClimberFruitsRipe fruits are edible (a sweet taste)LauraceaeLitsea cubeba Pers.Mâng tangShrubFruitsRipe fruits are ecoked as spiey condimentMenispermaceaeCissampelos andromorpha DC.Tiết đềClimberLeavesLeavesLeaves are crushed to make jellyMoraceaeFicus auriculata Lour.VàTreeLeavesLeavesYoung leaves are eaten raw, ripe fruits are edible (a sweet taste)MoraceaeSircus auriculata Lour.VàTreeLeavesLeavesYoung leaves are eaten raw, inpe fruits are edible (a sweet taste)MoraceaeSircus arecenosa L.SungTreeLeaves, fruitsRipe fruits are edibleMyrsinaceaeMisa acuminate CollaChuôiHerbShoots, flowersShoots and fruits are edibleMyrsinaceaeMaesa perlaria (Lour.) Merr.Don nemShrubFruitsRipe fruits are edibleOlacaceaeErythropalum scandens BlumeBò KhaiClimberLeavesYoung leaves are eaten rawOlacaceaeErythropalum scandens BlumeBò KhaiClimberLeavesYoung leaves are eaten frash and used for soup cookingOgaliaceaeOzaliaceanMelientha suavis PierreRau sångTreeLeaves, fruitsLeaves and fruits are eaten frash and used for soup cookingOpiliaceaePlepronia pellucida (L.) KunthChan guaHerbLeaves, flow	Euphorbiaceae	<i>Baccaurea cauliflora</i> Lour.	Dâu da đất	Tree	Fruits	Ripe fruits are edible
Gnetaceae Gnetum montanum Markgr. Day gåm Climber Fruits Ripe fruits are edible (a sweet taste) Hypericaceae Litsea cubeba Pers. Mång tang Shrub Fruits Young fruits are edible (a sweet taste) Menispermaceae Cissampelos andromorpha DC. Tiết dễ Climber Leaves Young leaves are eaten raw (a bitterish taste) Moraceae Ficus auriculata Lour. Vá Tree Leaves Young leaves are eaten raw, ripe fruits are edible (a sweet taste and good flavor) Moraceae Streblus asper Lour. Ruối Shrub Fruits Young leaves are eaten raw or oxoked soup with pork Musaceae Musaceae Maes acuminate Colla Chuá i Herb Shoots, flowers Shoots and flowers are eaten raw (a bitterish taste) Myrsinaceae Maesa perlaria (Lour.) Merr. Don nem Shrub Fruits Ripe fruits are edible Voung leaves are cooked as sour condiment. Ripe fruits are edible Opiliaceae Meliantha suavis Pierre Rau sắng Tree Leaves Young leaves are denba Young leaves are cooked as sour condiment Passifloraceae Pasiflora foetida L. Laves Young leaves are eaten fraw Shrub Fruit	Euphorbiaceae	Bischofia javanica Blume	Nhội	Tree	Leaves	Young leaves are eaten raw
HypercaceaeCratoxylum formosum (Jacq.) DyerThain nganhTreeLeavesYoung leaves are eaten raw (a bitterish taste)LauraceaeLitsea cubeba Pers.Màng tangShrubFruitsYoung fruits are cooked as spicy condiment (a pepper taste)MenispermaceaeCissampelos andromorpha DC.Tiết dễClimberLeavesLeaves are crushed to make jellyMoraceaeFicus auriculata Lour.VáTreeLeavesYoung leaves are eaten raw, ripe fruits are edible (a sweet taste and good flavor)MoraceaeStrebus asper Lour.RuôiShrubFruitsRipe fruits are edibleMusaceaeMusa acuninate CollaChuốiHerbShoots, flowersShoots and Rowers are eaten raw cooked soup with porkMyrsinaceaeMaesa perlaria (Lour.) Merr.Don nemShrubFruitsRipe fruits are edibleOlacceaeRhodomytus tomentosa Aiton) Hassk.SimShrubFruitsRipe fruits are eaten rawOpilaceaeMelientha suavis PiereRau sắngTreeLeaves, fruitsLeaves and rous are cooked as sour condimentOpilaceaeOralis corymbosa DC.Chua meHerbLeaves, fruitsLeaves and shoots are eaten fresh and used for soup cookingPassiflora foetida L.Lat tiênClimberLeaves, fruitsLeaves and shoots are eaten fresh and used for soup cookingOpilaceaeParomina bellotida (L.) KunthCâng cuaHerbLeaves, fruitsLeaves and shoots are eaten fresh and used for soup cookingPolygonaceaePeromina pellucida (L.) Kunth <td>Gnetaceae</td> <td>Gnetum montanum Markgr.</td> <td>Dây gẫm</td> <td>Climber</td> <td>Fruits</td> <td>Ripe fruits are edible (a sweet taste)</td>	Gnetaceae	Gnetum montanum Markgr.	Dây gẫm	Climber	Fruits	Ripe fruits are edible (a sweet taste)
LauraceaeLitsea cubeba Pers.Mâng tangShrubFruitsroung Infinis are colored as spicy condimientMenispermaceaeCissampelos andromorpha DC.Tiết dêClimberLeavesLeavesLeaves are crushed to make jellyMoraceaeFicus auriculata Lour.VáTreeLeavesYoung leaves are eaten raw, ripe fruits are edible (a sweet taste and good flavor)MoraceaeSirus racemosa LSungTreeLeavesYoung leaves are edibleMusaceaeMusa acuminate CollaChuôiHerbShoots, flowersShoots and flowers are edibleMyrsinaceaeEmbelia ribes Burm. f.Chua ngûtClimberLeavesYoung leaves are eaten rawMyrsinaceaeMasa perlaria (Lour.) Merr.Don nemShrubFruitsRipe fruits are edibleOgilaceaeErythropalum scandens BlumeBô KhaiClimberLeavesYoung leaves and fruits are eaten fresh and used for soup cookingOpilaceaeMasi corymbosa DC.Chua mgaTreeLeaves, flouitsLeaves and flowers are eaten fresh and used for soup cookingOxalidaceaePasiflora feelda L.Lat tiênClimberLeaves, flouitsLeaves are cooked as sour condimentPiparceaePasiflora ceida L.KuthCâng cuaHerbLeaves, flouitsLeaves and flowers are cooked as sour condimentOpilaceaePasiflora ceida L.KuthCâng cuaHerbLeavesYoung leaves are cooked as sour condimentPiparceaePeromin pellucida (Lo.) KunthCâng cuaHerbLeaves, flo	Hypericaceae	Cratoxylum formosum (Jacq.) Dyer	Thành ngạnh	Tree	Leaves	Young leaves are eaten raw (a bitterish taste)
MenispermaceaeCissampelos andromorpha DC.Tiết dêClimberLeavesLeavesLeaves are crushed to make jellyMoraceaeFicus auriculata Lour.VâTreeLeavesMoraceaeSungTreeLeavesLeavesand good flavor)MoraceaeStreblus asper Lour.RuốiShrubFruitsYoung leaves are eaten raw (a bitterish taste)MoraceaeMusaceaeMusa acuminate CollaChuốiHerbShoots, flowersShoots and flowers are eaten raw or cooked soup with porkMyrsinaceaeMusaceaeMusaceaeMusaceaeChua ngútClimberLeavesShoots and flowers are eaten rawMyrsinaceaeMaesa perlaria (Lour.) Merr.Don nemShrubFruitsRipe fruits are edibleMyrtaceaeRhodomytus tomentosa Aiton) Hassk.SimShrubFruitsRipe fruits are eaten favoOlaceaeErythropalum scandens BlumeBò KhaiClimberLeavesYoung leaves are eaten hoiledOpiliaceaeOkalis corymbosa DC.Chua meHerbLeaves, flowersLeaves and flowers are cooked as sour condimentPiperaceaePassiflora foetida L.La tiênClimberLeaves, shootsLeaves are eaten field, as well as cooked soupPiperaceaePlantago asitica L.Má dêHerbLeavesYoung leaves are eaten field, as well as cooked soupPolygonaceaePolygonaceaePolygonaceaePolygonaceaeKing horkYoung leavesPolygonaceaeSolanaceaeSolanum nigrum L.Lu lu ducHerb <t< td=""><td>Lauraceae</td><td>Litsea cubeba Pers.</td><td>Màng tang</td><td>Shrub</td><td>Fruits</td><td>(a pepper taste)</td></t<>	Lauraceae	Litsea cubeba Pers.	Màng tang	Shrub	Fruits	(a pepper taste)
MoraceaeFicus auriculata Lour.VàTreeLeavesYoung leaves are eaten raw, ripe fruits are edible (a sweet taste and god flavor)MoraceaeFicus racemosa L.SungTreeLeaves, fruitsYoung leaves are fruits are eaten raw (a bitterish taste)MoraceaeStrebhus asper Lour.RuóiShrubFruitsRipe fruits are edibleMusaceaeMusaceaeMusaceaeChuóiHerbShoots, flowersShoots and flowers are eaten raw or cooked soup with porkMyrsinaceaeMaesa perlaria (Lour.) Mer.Don nemShrubLeaves, fruitsLeaves are cooked as sour condiment. Ripe fruits are edibleMyrtaceaeRhodomytus tomentosa Aiton) Hassk.SimShrubFruitsRipe fruits are edibleOlacceaeErythropalum scandens BlumeBó KhaiClimberLeaves, fruitsLeaves and flowersOxalidaceaeOxalis corymbosa DC.Chua meHerbLeaves, fruitsLeaves and flowers are cooked as sour condimentPiperaceaePaeromia pellucida (L.) KunthCàng cuaHerbLeaves, shootsLeaves and flowers are cooked as sour condimentPiperaceaePeperomia pellucida (L.) KunthCàng cuaHerbLeaves, fruitsLeaves and shoots are eaten raw or cooked soupPolygonaceaePolygonum chinensis LMâ dêHerbLeavesYoung leaves are eaten fried, as well as cooked soup with porkPolygonaceaeSolanum nigrum L.Lu lu dựcHerbLeavesYoung leaves are eaten boiledSolanaceaeSolanum nigrum L.Lu lu dựcHerb	Menispermaceae	Cissampelos andromorpha DC.	Tiết dê	Climber	Leaves	Leaves are crushed to make jelly
MoraceaeFicus racemosa L.SungTreeLeaves, fruitsYoung leaves and fruits are eaten raw (a bitterish taste)MoraceaeStreblus asper Lour.RuôiShrubFruitsRipe fruits are edibleMusa acuminate CollaChuôiHerbShoots, flowersShoots and flowers are eaten raw or cooked soup with porkMyrsinaceae <i>Embelia ribes</i> Burm.f.Chua ngútClimberLeaves, fruitsLeaves are cooked as sour condiment. Ripe fruits are edibleMyrsinaceae <i>Maesa perlaria</i> (Lour.) Merr.Don nemShrubEavesYoung leaves are eaten rawMyrtaceae <i>Rhodmytus tomentosa</i> Aiton) Hassk.SimShrubFruitsRipe fruits are edibleOlacceae <i>Erythropalum scandens</i> BlumeBò KhaiClimberLeavesYoung leaves are eaten boiledOpiliaceae <i>Melientha suavis</i> PierreRau sångTreeLeaves, fruitsLeaves and flowers are cooked as sour condimentPassiflora foetida L.Lac tiênClimberLeaves, fruitsLeaves and flowers are eaten fresh and used for soup cookingPiperaceae <i>Peperomia pellucida</i> (L.) KunthCàng cuaHerbLeaves, flowersLeaves are cooked soup, ripe fruits are ediblePolygonaceae <i>Polygonum chinensis</i> L.Mă dêHerbLeavesYoung leaves are eaten raw or cooked soup with porkRosaceae <i>Rubus alceaefolius</i> PoiretMâm xôiTreeFruitsRipe fruits are edibleSolanaceae <i>Solanum nigrum</i> L.Lu lu dựcHerbLeavesYoung leaves are eaten boiled	Moraceae	Ficus auriculata Lour.	Vå	Tree	Leaves	Young leaves are eaten raw, ripe fruits are edible (a sweet taste and good flavor)
MoraccaeStreblus asper Lour.RuóiShrubFruitsRipe fruits are edibleMusa acuminate CollaChuóiHerbShoots, flowersShoots and flowers are eaten raw or cooked soup with porkMyrsinaceae <i>Musa acuminate</i> CollaChua ngútClimberLeaves, fruitsShoots and flowers are eaten raw or cooked soup with porkMyrsinaceae <i>Maesa perlaria</i> (Lour.) Merr.Don nemShrubLeaves, fruitsLeaves are cooked as sour condiment. Ripe fruits are edibleMyrtaceae <i>Rhodomytus tomentosa</i> Aiton) Hassk.SimShrubFruitsRipe fruits are edibleOlacaceae <i>Erythropalum scandens</i> BlumeBò KhaiClimberLeavesYoung leaves are eaten nawOpiliaceae <i>Melientha suavis</i> PierreRau sắngTreeLeaves, flowersLeaves and flowers are cooked as sour condimentPassiflora fordaa L.La et tiênClimberLeaves, flowersLeaves and flowers are eaten fresh and used for soup cookingOxalidaceae <i>Oxalis corymbosa</i> DC.Chua meHerbLeaves, flowersLeaves are cooked as sour condimentPiperaceae <i>Peperomia pellucida</i> (L.) KunthCâng cuaHerbLeavesYoung leaves are eaten fried, as well as cooked soup with porkPolygonaceae <i>Polygonum chinensis</i> L.Mã dêHerbLeavesYoung leaves are eaten fried, as well as cooked as our condimentRosaceae <i>Solanum nigrum</i> L.Lu lu dựcHerbLeavesYoung leaves are eaten nav or cooked as sour condimentSolanaceae <i>Solanum nigrum</i> L.Lu lu dực <t< td=""><td>Moraceae</td><td>Ficus racemosa L.</td><td>Sung</td><td>Tree</td><td>Leaves, fruits</td><td>Young leaves and fruits are eaten raw (a bitterish taste)</td></t<>	Moraceae	Ficus racemosa L.	Sung	Tree	Leaves, fruits	Young leaves and fruits are eaten raw (a bitterish taste)
Musa acuminate CollaChuốiHerbShoots, flowersShoots and flowers are eaten raw or cooked soup with porkMyrsinaceaeEmbelia ribes Burm.f.Chua ngútClimberLeaves, fruitsLeaves are cooked as sour condiment. Ripe fruits are edibleMyrsinaceaeMaesa perlaria (Lour.) Merr.Don nemShrubFruitsRipe fruits are edibleOlacaceaeRhodomytus tomentosa Aiton) Hassk.SimShrubFruitsRipe fruits are edibleOlacaceaeErythropalum scandens BlumeBò KhaiClimberLeavesYoung leaves are eaten nawOxalidaceaeOxalis corymbosa DC.Chua meHerbLeaves, fruitsLeaves and flowers are cooked as sour condimentPassifloraceaePassiflora foetida L.Lac tiênClimberLeaves, fruitsLeaves and flowers are cooked as sour condimentPiperaceaePeperomia pellucida (L.) KunthCâng cuaHerbLeaves, fruitsLeaves and flowers are cooked as sour condimentPolygonaceaePolygonauc hinensis L.Mã dêHerbLeavesYoung leaves are eaten nav or cooked soup with porkRosaceaeSolanaceaeSolanum nigrum L.Lu lu dựcHerbLeavesYoung leaves are eaten as raw salad or cooked soup with porkSolanaceaeSolanum nigrum L.Lu lu lu dựcHerbLeavesYoung leaves are eaten fieldSolanaceaeSolanum nigrum L.Lu lu lu dựcHerbLeavesYoung leaves are eaten boiledSolanaceaeSolanum nigrum L.Lu lu lu dựcHerbLeavesYoung fruits are edibl	Moraceae	Streblus asper Lour.	Ruối	Shrub	Fruits	Ripe fruits are edible
MyrsinaceaeEmbelia ribes Burm.f.Chua ngútClimberLeaves, fruitsLeaves are cooked as sour condiment. Ripe fruits are edibleMyrsinaceaeMaesa perlaria (Lour.) Merr.Don nemShrubLeavesYoung leaves are eaten rawMyrtaceaeRhodomytus tomentosa Aiton) Hassk.SimShrubFruitsRipe fruits are edibleOlacaceaeErythropalum scandens BlumeBò KhaiClimberLeavesYoung leaves are eaten boiledOpiliaceaeMelientha suavis PierreRau sángTreeLeaves, fruitsYoung leaves are cooked as sour condimentPassifloraceaeOxalis corymbosa DC.Chua meHerbLeaves, fruitsLeaves and flowers are cooked as sour condimentPassifloraceaePassiflora foetida L.Lac tiênClimberLeaves, fruitsLeaves and flowers are cooked as sour condimentPiperaceaePeperomia pellucida (L.) KunthCàng cuaHerbLeavesYoung leaves are eaten fried, as well as cooked soupPlantaginaceaePlantago asiatica L.Mã dêHerbLeavesYoung leaves are eaten boiledPolygonaceaePolygonum chinensis L.Thôm lômHerbLeavesLeavesYoung leaves are eaten boiledSolanaceaeSolanum ingrum L.Lu lu dựcHerbLeavesYoung leaves are eaten boiledSolanaceaeSolanum norvum Sw.Cà dại hoa trắngShrubFruitsYoung leaves are eaten boiledSolanaceaeSolanum ingrum L.Lu lu dựcHerbLeavesYoung leaves are eaten boiledSterculi	Musaceae	Musa acuminate Colla	Chuối	Herb	Shoots, flowers	Shoots and flowers are eaten raw or cooked soup with pork
MyrsinaceaeMaesa perlaria (Lour.) Merr.Don nemShrubLeavesYoung leaves are eaten rawMyrtaceaeRhodomytus tomentosa Aiton) Hassk.SimShrubFruitsRipe fruits are edibleOlacaceaeErythropalum scandens BlumeBò KhaiClimberLeavesYoung leaves are eaten boiledOpiliaceaeMelientha suavis PiereRau sángTreeLeaves, fruitsYoung leaves are eaten fresh and used for soup cookingOxalidaceaeOxalis corymbosa DC.Chua meHerbLeaves, flowersLeaves and flowers are cooked as sour condimentPassifloraceaePassiflora foetida L.Lac tiênClimberLeaves, fruitsLeaves are cooked soup, ripe fruits are ediblePiperaceaePeperomia pellucida (L.) KunthCàng cuaHerbLeavesYoung leaves are eaten fred, as well as cooked soupPlantaginaceaePolygonum chinensis L.Thòm lòmHerbLeavesYoung leaves are eaten fred, as well as cooked soup with porkPolygonaceaePolygonum chinensis L.Thòm lòmHerbLeavesLeavesSolanaceaeSolanum nigrum L.Lu lu dựcHerbLeavesYoung leaves are eaten boiledSolanaceaeSolanum nigrum L.Lu lu dựcHerbLeavesYoung leaves are eaten boiledSolanaceaeSolanum nigrum L.SingTreeFruitsYoung leaves are eaten boiledSolanaceaeSolanum nigrum L.Lu lu dựcHerbLeavesYoung leaves are eaten boiledSterculiaceaeSterculia lanceolata Cav.S	Myrsinaceae	Embelia ribes Burm.f.	Chua ngút	Climber	Leaves, fruits	Leaves are cooked as sour condiment. Ripe fruits are edible
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Γ_{110} Γ_{1	Tiliaceae	Microcos tomentosa Sm	Cò ke	Tree	Eruite	Ripe fruits are edible
	Verbenaceae	Clerodendrum cvrtonhvllum Turcz	Đắng cầy	Shrub	Leaves	Young leaves are fried with eggs (a hitterish taste)



Figure 1. Percentage of plant parts used by tribals

Arecaceae, and Moraceae (3 species, - 5.8%), Cucurbitaceae, Dilleniaceae, Myrsinaceae, and Solanaceae (2 species, -3.8%), relatively, which together represent 57.7% of all recorded edible plants. Euphorbiaceae, Anacardiaceae, Arecaceae, and Moraceae are the biggest families with a fluctuating percentage from 9.6 % to 5.8 %. This is not surprising, because they are also the biggest families in the flora of Vietnam including many various species of different use. Detected wild edible plants of Doong village area belong to the following life forms: trees with 22 species (46.2% of all recorded species), herbs: 10 (21.2%), shrubs: 8 (17.3%), and climbers: 7 (15.3%). In comparison, the flora of edible wild plants of the Cold Desert Biosphere Reserve of Indian Himalaya (Pham et al., 2018) contains 91 species including only one tree species. This lies in strong contrast between the cold desert biome and the tropical forest biome where trees dominate. The 46 wild edible plants have been ranged into 9 groups on the manner of their use. They are plants with edible fruits (17 species, occupied 37.0% of all recorded species), edible leaves (13 species, - 28.2%), edible leaves and fruits (5 species, - 10.9%), edible leaves and shoots (3 species, 6.5%), edible core (3 species, - 6.5%), edible leaves and flowers (2 species, -4.3%), edible seeds, edible fronds, as well as shoots and flowers together (1 species, -2.2%). The last group includes plants with edible leaves and fruits, leaves and shoots, leaves and flowers, shoots and flowers. The various plant parts of edible wild plants such as stems, leaves, flowers, fruits, etc., are either used fresh such as raw vegetables, ripe fruits, or jelly, or in cooked form, i.e., boiled, cooked soup, roasted, grilled, fried, or as oil, condiment, pickles, etc. Out of 46 species recorded, 25 species were consumed in fresh form whereas 21 species were consumed in cooked form, i.e., boiled, cooked soup, fried, etc., and eight species were utilized in both ways.

Table 2. Information about the informants

	Character	Number	Percentage (%)
Sex	Male	25	62,5
	Female	15	37,5
	< 15	0	0
	15 - 25	8	20
Age	26 - 35	12	30
	36 - 50	15	37,5
	> 50	5	12,5

The interviews were made face-to-face with 60 local people. However, many of the women living in the villages avoided giving their names. Therefore, 40 recorded names were presented in the catalog of source people. The ages of the informants varied from 15 to more than 50 years and most of them were over 35 years old. The age of the youngest informant was 15 and the oldest was 58. Over 62,5 % of informants were the man (Table 2).

The adult man mainly carry out the collection of wild foods. They often go in groups to forests at a greater distance from the homestead undertake the collection of wild foods. Nowadays, it has been noticed that the traditional method of collecting food plants is in significant decline. It is because of the lack of interest of younger generation to learn the skills from older people as they prefer food found in the local market rather than collection in the forestry. This is also one of the reasons for declining the traditional knowledge on collection and utilization of wild foods in the Vietnam.

Conclusion

Wild food plants are used as common household food and make a substantial contribution to the food security of the tribal people in many parts of Doong Village. Besides, as pollution occurs in many places, and as many farmers apply large volumes of pesticides to cultivated vegetables, many wild vegetables are considered as safer for humans. This result revealed that wild edible plant species hold an significant role in food security in rural mountainous areas, particularly in developing countries.

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