



Diversity of Orchidaceae in South East Viet Nam

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ABSTRACT

Result of study on the diversity of orchids in Southern East Viet Nam at 6 study sites from July 2019 to October 2020 have identified 173 orchids species belong to 50 different genus, accounting for 14.41% of the total number of orchid species available in Viet Nam (1.200 species). Among them, all species were used as ornamental plants; 13 species were used for medicinal herbs; and 6 species were listed for conservation in Vietnam Red Data Book, (2019). Fresh samples are processed and photographed in the field, then have brought back to plant and take care of the garden of Thu Dau Mot University. The life forms of orchids were divided into groups including: (1) epiphytes with 144 species, (2) terrestrials with 26 species, (3) saprophytes with 1 species, (4) lithophytes with 2 species. Added 60 species to forest orchid flora of Southern East Viet Nam.

Keywords: Diversity of Orchidaceae family, Southern East Viet Nam

1. Introduction

The South East is located in wide plains transitioning from the South Central Highlands to the Mekong river delta, including 6 provinces (Ho Chi Minh City, Ba Ria-Vung Tau, Tay Ninh, Binh Duong, Binh Phuoc, Dong Nai). The elevation of the different topographic from 200 to 750m. The highest is Ba Den mountain with 986m in Tay Ninh province and is characterized by a sub-equatorial climate with high temperature and almost unchanged throughout the year. The typical habitats in South East region are evergreen forest, deciduous forest, mangrove forest and grassland with a very diverse flora, especially forest orchids (Sterling, Hurley & Minh, 2007). Studies of orchids in South East have not been much and full, mainly focused in national parks, nature reserves and special forest (Cat Tien national park and Vinh Cuu nature reserve in Dong

Nai province, Bu Gia Map national park in Binh Phuoc province, Lo Go-Xa Mat national park in Tay Ninh province, Binh Chau Phuoc Buu nature reserve in Ba Ria Vung Tau province). The South East is considered as a conservation area for rare and economically valuable orchid species in South of Viet Nam. Over the past decades, due to many human impacts such as: forest exploitation, cultivation, industrial tree planting, forestry, construction of irrigation, hydropower and urbanization etc...Its has narrowed the natural forest area, habitats have been changed or lost, many species of forest plants are threatened in which, species of forest orchids are reducing rapidly. Especially species of economic value, rare medicinal. Therefore, the investigation and assessment of the reality forest orchid species composition as a basis for the management, conserve precious genetic resources and maintain plant biodiversity is necessary.

2. Material and research methods

Materials

All species of the orchid family (Orchidaceae) are distributed in South East region Viet Nam, organic fertilizer, coir, charcoal for use in orchid cultivation.

Research methods

Surveying and sampling of orchid species (Orchidaceae) in the field, the survey location was established based on the distribution characteristics of the orchid family (Orchidaceae), in which priority for investigation in national parks, nature reserves and primeval forests at 6 study sites from July 2019 to October 2020: Cat Tien national park and Vinh Cuu nature reserve in Dong Nai province, Bu Gia Map national park in Binh Phuoc province, Lo Go-Xa Mat national park in Tay Ninh province, Binh Chau Phuoc Buu nature reserve in Ba Ria Vung Tau province and Dau Tieng Binh Duong province.

In each study site is divided according to the survey route and sample collection 2 times a year in the rainy and dry seasons.

Directly collect samples with people specializing in exploiting forest orchids at 6 study sites.

Orchid samples collected during the survey included fresh samples, processed and photographed in the field, and accompanied by sample records. The fresh samples are kept at the orchid collection garden of Thu Dau Mot University.

Scientific names and life forms of species of the orchid family (Orchidaceae) were determined according to the comparative morphological method on the basis of published documents of Pham Hoang Ho (2003, 2006), Gagnepain & Guillaumin (1932- 1934), Averyanov et al., (2003), Cribb (1998), Averyanov et al. (2003), Averyanov et al., (2013) at the same time comparing with the standard sample stored in

the Botanical Museum of the Institute of Tropical Biology. The editing and updating of the scientific names of the species in the (Orchidaceae) is conducted according to the publications of Kew science (<https://wmsp.science.kew.org>) and The Plant List (<http://www.theplantlist.org/>).

3. Results and Discussion

3.1. Species composition diversity

The results of analyzing data obtained in the field and in the laboratory have identified the orchid family (Orchidaceae) in the South East region with 173 species belonging to 50 genera, of which 60 species were added to the South East compared with previous studies (Table 1).

TABLE 1. List of species composition of the orchid family (Orchidaceae) in South East region Viet Nam

STT	Science name	Vietnamese name	Life form
1	<i>Acampe carinata</i> (Griff.) Panigrahi	A cam sóng	Epi
2	<i>Acampe ochracea</i> (Lindl.) Hochr.	A cam sét	Epi
3	<i>Acampe papillosa</i> Lindl.*	Bắp ngô cụm ngắn	Epi
4	<i>Acriopsis indica</i> C.Wright	Tổ yến ấn	Epi
5	<i>Acriopsis liliifolia</i> (J.Koenig) Ormerod	Tổ yến Java	Epi
6	<i>Aerides falcata</i> Lindl. & Paxton	Giáng hương	Epi
7	<i>Aerides houlletiana</i> Rchb.f.	Giáng hương quế nâu	Epi
8	<i>Aerides multiflora</i> Roxb.*	Giáng hương đuôi cáo	Epi
9	<i>Aerides odorata</i> Lour.	Lan giáng hương	Epi
10	<i>Aerides rosea</i> Lodd. ex Lindl. & Paxton	Giáng xuân nhiều hoa	Epi
11	<i>Agrostophyllum callosum</i> Rchb.f.*	Càng cua thân dài	Epi
12	<i>Agrostophyllum planicaule</i> (Wall. ex Lindl.) Rchb.f.	Xích hủ thân mập	Epi
13	<i>Anoectochilus roxburghii</i> .*	Lan Kim tuyến	Ter
14	<i>Aphyllorchis montana</i> Rchb.f.	Âm lan núi	Sap
15	<i>Appendicula cornuta</i> Blume	Vệ lan móng	Lit, Epi
16	<i>Appendicula floribunda</i> (Schltr.) Schltr.*	Vệ lan nhiều hoa	Lit, Epi
17	<i>Arachnis labrosa</i> (Lindl. & Paxton) Rchb.f.	Lan nhện môi hẹp	Epi
18	<i>Biermannia sigaldii</i> Seidenf.	Lan bạch manh	Epi
19	<i>Brachypeza laotica</i> (Seidenf.) Seidenf.*	Lan môi sừng	Epi
20	<i>Bulbophyllum affine</i> Wall. ex Lindl.*	Cầu điệp gối	Epi
21	<i>Bulbophyllum ayuthayense</i> J.J.Verm., Schuit. & de Vogel*	Lan củ chén xiêm	Epi

22	<i>Bulbophyllum bariense</i> Gagnep.*	Lọng bà rịa	Epi
23	<i>Bulbophyllum blepharistes</i> Rachb.f.	Lọng tai thỏ	Epi
24	<i>Bulbophyllum careyanum</i> (Hook. f.) Spreng.	Cầu diệp trên	Epi
25	<i>Bulbophyllum dissitiflorum</i> Seidenf.*	Lọng chùm cong	Epi
26	<i>Bulbophyllum haniffii</i> Carr.*	Lọng chân rết	Epi
27	<i>Bulbophyllum hymenanthum</i> Hook. f.	Cầu diệp màng	Epi
28	<i>Bulbophyllum macranthum</i> Lindl	Lọng hoa lớn	Epi
29	<i>Bulbophyllum macrocoleum</i> Seidenf.	Cầu diệp cô lê	Epi
30	<i>Bulbophyllum morphologorum</i> Kraenzil.	Cầu diệp	Epi
31	<i>Bulbophyllum refractum</i> (Zoll.&Mor.) Reichbf.	Cầu diệp thông	Epi
32	<i>Bulbophyllum reptans</i> (Lindl.) Lindl.	Cầu diệp bò	Epi
33	<i>Bulbophyllum retusiusculum</i> Rchb.f.	Cầu diệp tà	Epi
34	<i>Bulbophyllum rufinum</i> Rchb.f.	Cầu diệp sói	Epi
35	<i>Bulbophyllum wallichii</i> Rchb.f.*	Cầu diệp wallich	Epi
36	<i>Calanthe alleizettei</i> Gagnep.*	Bầu rượu	Ter
37	<i>Calanthe angustifolia</i> (Blume) Lindl.*	Bầu rượu kim tân	Ter
38	<i>Calanthe chevalieri</i> Gagnep	Bầu rượu Chevalier	Ter
39	<i>Calanthe clavata</i> Lindl.*	Bầu rượu chùy	Ter
40	<i>Calanthe rubens</i> Ridl.*	Bầu rượu xuân	Ter
41	<i>Calanthe triplicata</i> (Willemet) Ames	Kiều lan xếp ba	Ter
42	<i>Calanthe vestita</i> Lindl.*	Bầu rượu tím	Ter
43	<i>Cleisostoma arietinum</i> (Rchb.f.) Garay*	Mật khẩu đầu bò	Epi
44	<i>Cleisostoma birmanicum</i> (Shltr.) Garay.	Mật khẩu Miến Điện	Epi
45	<i>Cleisostoma duplicilobum</i> (J.J.Sm.) Garay	Mật khẩu hai thùy	Epi
46	<i>Cleisostoma fuerstenbergianum</i> Kraenzl.*	Mật khẩu mảnh	Epi
47	<i>Cleisostoma lecongkietii</i> Tich et Aver.*	Mật khẩu Lê Công Kiệt	Epi
48	<i>Cleisostoma racemiferum</i> (Lindl.) Garay	Mật khẩu chia nhánh	Epi
49	<i>Coelogyne assamica</i> Linden & Rchb.f.*	Thanh đạm cánh bướm	Epi
50	<i>Coelogyne brachyptera</i> Rchb.f.	Thanh đạm xanh	Epi
51	<i>Coelogyne fimbriata</i> Lindl.*	Thanh đạm rìa	Epi
52	<i>Coelogyne flaccida</i> Lindl.	Thanh đạm mềm	Epi
53	<i>Coelogyne moorena</i> Rolfe*	Thanh đạm tuyết ngọc	Epi
54	<i>Coelogyne sanderae</i> Kraenzl. ex O'Brien*	Thanh đạm cánh	Epi
55	<i>Coelogyne trinervis</i> Lindl.	Thạch đạm ba gân	Epi
56	<i>Coelogyne viscosa</i> Rchb.f.	Thanh đạm cỏ	Epi
57	<i>Crepidium acuminatum</i> (D.Don) Szlach.	Ái lan nhọn	Ter

58	<i>Crepidium calophyllum</i> (Rchb.f.) Szlach.	Ái lan mỹ diệp	Ter
59	<i>Crepidium purpureum</i> (Lindl.) Szlach.*	Mai đất tím	Ter
60	<i>Cryptochilus</i> cf. <i>ctenostachyus</i> Gagnep.	Ăn thiệt trâm	Epi
61	<i>Cryptochilus siamensis</i> (Schltr.) Schuit.	Ni lan xiêm	Epi
62	<i>Cymbidium aloifolium</i> (L.) Sw.	Đoàn kiếm lô hội	Epi
63	<i>Cymbidium bicolor</i> Lindl.*	Đoàn kiếm hai màu	Ter
64	<i>Cymbidium erythrostylum</i> Rolfe.*	Bạc lan	Ter
65	<i>Cymbidium finlaysonianum</i> Lindl.	Đoàn kiếm	Epi
66	<i>Dendrobium acerosum</i> Lindl.	Hoàng thảo lá kim	Epi
67	<i>Dendrobium aduncum</i> Wall. ex Lindl.	Hồng cầu	Epi
68	<i>Dendrobium aloifolium</i> (Bl.) Reichb.f.	Móng rồng	Epi
69	<i>Dendrobium anosmum</i> Lindl.*	Phi diệp	Epi
70	<i>Dendrobium bilobulatum</i> Seidenf.	Phiếm đờn hai thùy	Epi
71	<i>Dendrobium blaense</i> Schuit. & Peter B.Adams	Thạch mộc Việt Nam	Epi
72	<i>Dendrobium capillipes</i> Rchb.f.*	Kim diệp	Epi
73	<i>Dendrobium crepidatum</i> Lindl. & Paxt.	Ngọc vạn sáp	Epi
74	<i>Dendrobium cumulatum</i> Lindl.*	Hoàng thảo tích tụ	Epi
75	<i>Dendrobium delacourii</i> Gouill.	Điều lan	Epi
76	<i>Dendrobium densiflorum</i> Lindl.	Thủy tiên mờ gà	Epi
77	<i>Dendrobium draconis</i> Rchb.f.	Nhất điểm hồng	Epi
78	<i>Dendrobium ellipsophyllum</i> T.Tang & F.T.Wang*	Hoàng thảo hương duyên	Epi
79	<i>Dendrobium exile</i> Schltr.	Mộc lan đày	Epi
80	<i>Dendrobium farmeri</i> Paxt.	Thủy tiên trắng	Epi
81	<i>Dendrobium gratiosissimum</i> Reich.f.	Lan ý thảo, Hoàng thảo	Epi
82	<i>Dendrobium heterocarpum</i> Wall. ex Lindl.	Nhất điểm hoàng	Epi
83	<i>Dendrobium indivisum</i> (Blume) Miq.	Hoàng thảo không phân	Epi
84	<i>Dendrobium leonis</i> (Lindl.) Reichb.f.	Sù trâm	Epi
85	<i>Dendrobium lindleyi</i> Steudel.	Váy cá, Váy rắn	Epi
86	<i>Dendrobium linguella</i> Rchb.f.	Hương ve ni	Epi
87	<i>Dendrobium mannii</i> Ridl.	Hoàng thảo xương khô	Epi
88	<i>Dendrobium metrium</i> Kraenzl.	Hoàng thảo	Epi
89	<i>Dendrobium nathanielis</i> Rchb.f.	Hoàng thảo móng rồng	Epi
90	<i>Dendrobium oligophyllum</i> Gagn.	Hương duyên	Epi
91	<i>Dendrobium pachyglossum</i> Par.& Reichb.f.	Mộc lan lưỡi dày	Epi

92	<i>Dendrobium palpebrae</i> Lindl.	Trâm vàng	Epi
93	<i>Dendrobium parciflorum</i> Rchb.f. ex Lindl.*	Hoàng thảo hương lan	Epi
94	<i>Dendrobium polyanthum</i> Wall. ex Lindl.	Thạch học vôi	Epi
95	<i>Dendrobium salaccense</i> (Bl.) Lindl.	Mộc lan sa lặc	Epi
96	<i>Dendrobium secundum</i> (Bl.) Lindl.	Báo hi	Epi
97	<i>Dendrobium simondii</i> Gangnep.*	Hoàng thảo Simond	Epi
98	<i>Dendrobium thyrsoflorum</i> Reichb.f.	Thủy tiên mỡ gà	Epi
99	<i>Dendrobium truncatum</i> Lindl.	Phong lan	Epi
100	<i>Dendrobium umbonatum</i> Seidenf.	Hoàng thảo môi hình thuẫn	Epi
101	<i>Dendrobium uniflorum</i> Griff.*	Hoàng thảo nhất hoa	Epi
102	<i>Dendrolirium lasiopetalum</i> (Willd.) S.C.Chen & J.J.Wood	Ni lan lông	Epi, Ter
103	<i>Dienia ophrydis</i> (J.Koenig) Seidenf.	Ái lan lá rộng	Ter
104	<i>Gastrochilus obliquus</i> (Lindl.) Kuntze	Hàm lân tu	Epi
105	<i>Gastrochilus yunnanensis</i> Schltr.*	Hàm lân vân nam	Epi
106	<i>Liparis nana</i> Rolfe*	Tai dê lùn	Ter
107	<i>Liparis viridiflora</i> (Blume). Lindl.	Lan tai dê hoa xanh	Epi
108	<i>Luisia brachystachys</i> (Lindl.) Bl.	Lụi chùm ngắn	Epi
109	<i>Luisia filiformis</i> Hook.f.*	Lan San hô sợi	Epi
110	<i>Luisia psyche</i> Reichb.f.	Lụi mơ	Epi
111	<i>Luisia ramosii</i> Ames*	San hô	Epi
112	<i>Luisia</i> sp.	Lụi	Epi
113	<i>Macropodanthus alatus</i> (Holttum) Seidenf. & Garay	Đại cước	Epi
114	<i>Malaxis</i> sp.	Ailan	Ter
115	<i>Micropera pallida</i> (Roxb.) Lindl.	Vi túi tái	Epi
116	<i>Micropera poilanei</i> (Guillaumin) Garay*	Vi túi Poilane	Epi
117	<i>Micropera thailandica</i> (Seidenf. & Smitinand) Garay	Vi túi Thái	Epi
118	<i>Microsaccus griffithii</i> (E.C.Parish & Rchb.f.) Seidenf.	Phong lan	Epi
119	<i>Mycaranthes pannea</i> (Lindl.) S.C.Chen & J.J.Wood*	Ni len tã toi	Epi
120	<i>Nervilia concolor</i> (Blume) Schltr.*	Trân châu xanh	Ter
121	<i>Nervilia fordii</i> Averyanov*	Lan một lá	Ter
122	<i>Nervilia gracilis</i> Averyanov*	Diệp tâm lan	Ter
123	<i>Nervilia plicata</i> (Andrews) Schltr.*	Trân châu xếp	Ter
124	<i>Nervilia simplex</i> (Thouars) Schltr.	Trân châu	Ter
125	<i>Nervilia</i> sp.	Trân châu	Ter
126	<i>Oberonia acaulis</i> Griff.	Móng rùa không thân	Epi
127	<i>Oberonia caulescens</i> Lindl.*	Móng rùa có thân	Epi

128	<i>Oberonia gammiei</i> King & Pantl.	Móng rùa Gammi	Epi
129	<i>Oberonia longibracteata</i> Lindl.*	Móng rùa lá bắc dài	Epi
130	<i>Oberonia lycopodioides</i> (J.Koenig) Ormerod	Móng rùa hai đầu	Epi
131	<i>Oberonia nitida</i> Seidenf.	Móng rùa đẹp	Epi
132	<i>Oberonia rufilabris</i> Lindl.	Móng rùa môi đỏ	Epi
133	<i>Oberonia trochopetala</i> Gagnep	Móng rùa	Epi
134	<i>Panisea albiflora</i> (Ridl.) Seidenf.	Khúc thân hoa trắng	Epi
135	<i>Panisea uniflora</i> Lindl.*	Khúc thân một hoa	Epi
136	<i>Pelatantheria ctenoglossum</i> Ridl.*	Bạt lan trâm, Lan môi râu	Epi
137	<i>Phalaenopsis lobbii</i> (Reichb.f.) H.R.Sweet*	Tục đoạn đốt	Epi
138	<i>Pholidota articulata</i> Lindl.	Tục đoạn kế	Epi
139	<i>Pholidota imbricata</i> Roxb. ex. Hook.f.	Tục đoạn kết hợp	Epi
140	<i>Pinalia acervata</i> Kuntze*	Ni lan trắng	Epi
141	<i>Pinalia cochinchinensis</i> (Gagnep.) Schuit.*	Ni lan Nam Bộ	Epi
142	<i>Pinalia dongnaiensis</i> (Gagnep.) S.C.Chen & J.J.Wood*	Ni lan Đồng Nai	Epi
143	<i>Pinalia floribunda</i> Kuntze*	Lan len nhiều hoa	Epi
144	<i>Polystachya concreta</i> (Jacq.) Garay & H.R. Sweet	Đa phương	Epi
145	<i>Pomatocalpa spicatum</i> Breda, Kuhl & Hasselt	Phong lan	Epi
146	<i>Pteroceras compressum</i> (Blume) Holttum*	Môi sừng	Epi
147	<i>Pteroceras teres</i> (Blume) Holttum	Dực giác tròn	Epi
148	<i>Rhynchostylis coelestis</i> Reichb.f.	Cờ lao, Ngọc điểm	Epi
149	<i>Rhynchostylis gigantea</i> (Lindl.) Ridl.	Lan lưỡi bò, Ngọc điểm	Epi
150	<i>Rhynchostylis retusa</i> (L.) Blume*	Ngọc điểm đuôi cáo	Epi
151	<i>Robiquetia succisa</i> (Lindl.) Seidenf. & Garay*	Túi chùy thất	Epi
152	<i>Smitinandia helferi</i> (Hook.f.) Garay	Lan Mã lai vành	Epi
153	<i>Smitinandia micrantha</i> (Lindl.) Holttum*	Lan Smitinan hoa nhỏ	Epi
154	<i>Staurochilus fasciatus</i> (Reichb. f.) Ridl.	Hồ bi	Epi
155	<i>Taeniophyllum daroussinii</i> Tixier & Guillaumin*	Căn điệp xuân lộc	Epi
156	<i>Taeniophyllum pusillum</i> (Willd.) Seidenf. & Ormerod	Đài điệp tà	Epi
157	<i>Thecostele alata</i> (Rchb.f.) Par.& Rchb.f.*	Củ chén	Epi
158	<i>Thelasis micrantha</i> (Brongn.) J.J.Sm.	Lan củ dẹt nhọn	Epi
159	<i>Thelasis pygmaea</i> (Griff.) Lindl.	Lan củ lùn dẹt	Epi
160	<i>Thrixspermum centipeda</i> Lour.	Lan xương cá, Mao từ rít	Epi
161	<i>Thrixspermum hystrix</i> (Bl.) Reichb.f.	Mao từ nhiễm	Epi

162	<i>Thrixspermum leucarachne</i> Ridl.	Mao tử	Epi
163	<i>Thrixspermum</i> sp.	Mao tử Nam Cát Tiên	Epi
164	<i>Thrixspermum trichoglottis</i> (Hook.f.) Kuntze	Mao tử lưỡi	Epi
165	<i>Thunia alba</i> (Lindl.) Rchb.f.	Hạc đình trắng	Ter
166	<i>Thunia pulchra</i> Rchb.f.*	Bạch hạc nhỏ	Ter
167	<i>Trichoglottis retusa</i> Blume	Mao thiệt tà	Epi
168	<i>Trichoglottis seidenfadenii</i> Aver.	Mao thiệt Seidenfaden	Epi
169	<i>Trichotosia pulvinata</i> (Lindl) Kraenzl.	Mao lan gói	Epi
170	<i>Trichotosia velutina</i> (Lodd. ex Lindl.) Kraenzl.	Mao lan lông	Epi
171	<i>Tropidia curculigoides</i> Lindl	Lan đất bông ngắn	Ter
172	<i>Vanda denisoniana</i> Benson & Rchb.f.	Mỹ dung dạ hương	Epi
173	<i>Vanilla aphylla</i> Blume	Vani không lá	Epi

Notes: Epi: Orchid, Lit: Stone orchid, Ter: Cymbidium, Sap: saprophytic orchid; * Additional species for the South East.

The results in Table 1, species composition of the orchid family (Orchidaceae) in South East region is quite diverse and rich with 173 species, accounting for 14.41% of the total number of orchid species available in Viet Nam (1.200 species) (Averyanov, et al., 2003; Averyanov and et al., 2017a; Pham Hoang Ho, 2003). The most diverse is the genus (*Dendrobium*) with 36 species, accounting for 20.80% of the total species of the orchid family currently in the study area; followed is genus (*Bulbophyllum*) with 16 species, accounting for 9.25%; genus *Coelogyne* and *Oberonia* have 8 species, accounting for 4.62%, genus *Calanthe* has 7 species accounting for 4.05%, genus *Cleisostoma* and *Nervilia* have 6 species accounting for 3.47%, genus *Luisia*, *Aerides*, *Thrixspermum* have 5 species accounting for 2.9%. The remaining genera only 1 to 4 species, accounting for low rate (Averyanov et al., 2013, Averyanov and et al., 2017a; Nguyen Thien Tich, 2001; Tran Hop, 1998).

3.2. Diverse in life form

The life forms of species of the Orchid family (Orchidaceae) in South East region is very diverse and distributed in many different habitats, one species can have one or two different life forms. Table 1 shows that the orchid life form group (Epi) has the most number of species with 144 species, accounting for 83.23% of the total number of species in the study area, this group often cling to large trees in the forests, evergreen moist; next is cymbidium (Ter) group with 26 species, accounting for 15.03%, this group often grows on soil with moist rotting layer or meat soil under the buried forest; Saprophytic orchid group (Sap) has 1 species, accounting for 0.58%; Stone orchid group (Lit) has 2 species, accounting for 1.15%.

3.3. Diversity of rare genetic resources

The identification of endangered orchid species plays an extremely important role in the conservation of genetic resources and sustainable development of this particularly valuable resource. Table 1 shows that, there are 6 species of orchids (accounting for 3,46% of total species) in the South East region of conservation value according to the Vietnam Red Data Book, (2019). In which, there are 3 species of orchid ranked endangered, the level (EN) is *Agrostophyllum planicaule*, *Dendrobium heterocarpum*, *Pinalia dongnaiensis* and 3 species ranked will be endangered, the level (VU) is *Dendrobium draconis*, *Dendrobium farmeri*, *Coelogyne trinervis*, these species are narrowly distributed. But often affected by their habitat and always exploited for commercial purposes (Ministry of Science and Technology, 2019).

3.4. Diversity in value use

All species in the orchid family (Orchidaceae) in the Southern East region are of economic and commercial value, used as an ornamental because they are easy to grow and care for, they often give beautiful color and fragrance. The results of the study have also identified 13 species (accounting for 7.51% of the total species) of medicinal value including: *Acriopsis liliifolia*, *Aerides falcata*, *Appendicula cornuta*, *Calanthe triplicata*, *Cymbidium aloifolium*, *Dendrobium aduncum*, *Dendrobium gratiosissimum*, *Nervilia fordii*, *Pholidota articulata*, *Pholidota imbricata*, *Rhynchostylis retusa*, *Tropidia curculigoides*, *Anoectochilus roxburghii* (Do Tat Loi, 2009; Nguyen Thien Tich, 2001; Pham Hoang Ho, 2006; Vo Van Chi, 2012).

4. Conclusion

The study results have identified the orchid family (Orchidaceae) in the South East with 173 species belonging to 50 genera. In which, all species have ornamental value, 13 species have medicinal value, 6 species in the Viet Nam Red Data Book, (2019). The life forms of species of the orchid family (Orchidaceae) is divided into 4 groups: Orchids (Epi) has 144 species, Cymbidium (Ter) has 26 species, saprophytic orchid (Sap) has 1 species, Stone orchid (Lit), there were 2 species. Added 60 species to forest orchid flora of Southern East Viet Nam.

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