

# *Plagiochila peradenyensis* Schiffn. new to India\*

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An epiphytic species of *Plagiochila* (Dum.) Dum., *Plagiochila peradenyensis* Schiffn. earlier known to be endemic to Sri Lanka has been recorded for the first time from India. It profusely occurs in Nilgiris and Palni Hills of South India suggesting an extended range of distribution in the Gondwanaland.

**Key-words-** Bryophyta, Hepaticae, Plagiochilaceae, *P. peradenyensis* Schiffn.

## INTRODUCTION

*PLAGIOCHILA* (Dum.) Dum. (Plagiochilaceae) is taxonomically one of the most complex genus of leafy liverworts, distributed worldwide with a representation of upto 1800 species (Bonner, 1962; Inoue 1971). In India nearly more than hundred species of *Plagiochila* have been reported from all bryogeographically rich areas except Central India (Chopra, 1943; Dixit, 1995; Hattori, 1966; Kashyap, 1932; Parihar, 1994; Srivastava & Dixit, 1994, 1996; Stephani, 1906-1914; Udar, 1976). So far about 31 species of *Plagiochila* have been reported from South India and 19 of these are found in Nilgiris (Dixit, 1995). While going through a cursory survey of liverwort collection from south India made by Late Prof. Ram Udar and his associates, some interesting plants of *Plagiochila* from the vicinity of Government Botanical Garden-Ootacamund (Nilgiri Hills) and Perumalmalai-Kodaikanal (Palni Hills) were encountered, which on critical evaluation revealed *Plagiochila peradenyensis* Schiffn., thus not only extending the range of distribution of this taxon in peninsular India but also constituting a new record of the species from this country. *Plagiochila peradenyensis* Schiffn. was earlier known to be endemic to Sri Lanka, (Schiffner, 1900;

Inoue, 1979). As most of the species of *Plagiochila* generally fail to develop sporogonia in nature, the sporophytic details in many of them are unknown from India. Fortunately, the present species shows well-developed reproductive structures including the sporophyte. The paper deals with the morphological diversity exhibited by the Indian plants in both the generation.

## DESCRIPTION

*Plagiochila peradenyensis* Schiffn.

Pl. 1. Figs. 1-23, Pl. 2. Figs. 1-23

*Plagiochila peradenyensis* Schiffn. Denkschr. Math.-Nat. Cl. K. Akad. Wiss. Wien (1900) **70**: 172; H. Inoue, *Journ. Hattori Bot. Lab.* (1979) **46**: 193-233.

Plants epiphytic, in compact tufts, ascending, medium-large, upto 38 mm long, robust, 3.4-4.0 mm wide, pale brownish (when dry), arising from the rhizomatous axis. Branching *Frullania*- type. Stem blackish-brown, entirely covered with imbricate leaf bases, oval, 12-16 cells wide across diameter, differentiated, cortical cells 3-4 layered, extremely thickened with a small central lumen, medullary cells hexagonal to rectangulate, thin-walled, without trigones. Leaves

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## PLATE 1

**Figures 1-23: *Plagiochila peradenyensis* Schiffn.**

1. Dorsal view of the plant. 2. Ventral view of the plant 3. T.S. of stem. 4-9. Leaves 10. Basal cells of leaf. 11. Median cells of

leaf. 12. Apical cells of leaf. 13-22. Underleaves and Paraphyllia. 23. Cells of underleaf.

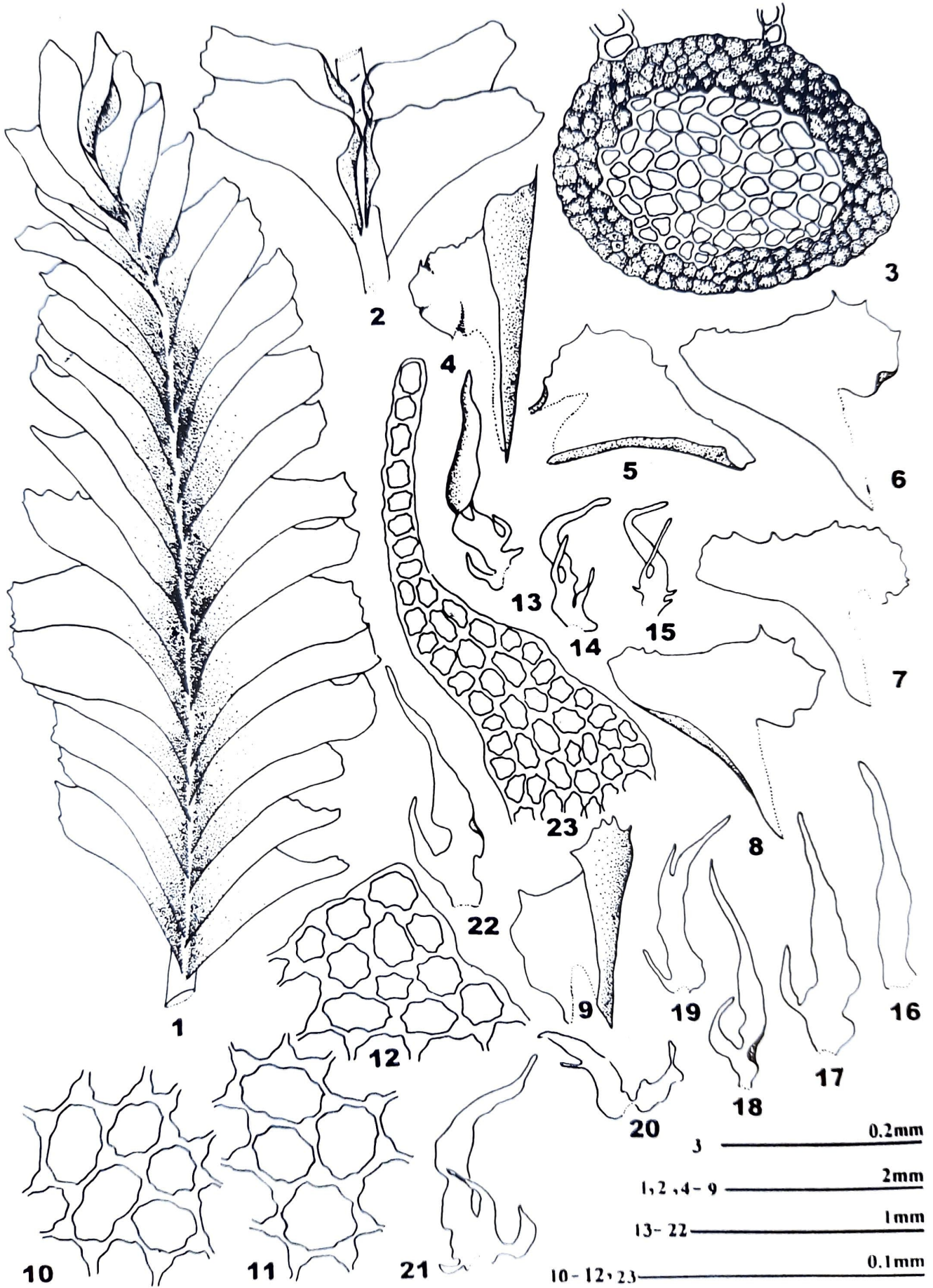


PLATE 1

contiguous, not fragile, closely imbricate, succubus, obliquely inserted, longly decurrent along stem mid line, ovate-oblong, 12.8-16.8 mm long, 10.8-11.2 mm wide, entire, postical margin nearly straight, weakly revolute, antical margin undulate, weakly arched, apex subtruncate, with 2-6 triangulate marginal teeth, 4-5 cells broad at base. Leaf-cells hexagonal with thickened walls and nodulose trigones, apical cells 10.8-21.6  $\mu\text{m}$  x 10.8-13.5  $\mu\text{m}$ , middle cells 13.5-24.0  $\mu\text{m}$  x 13.5-19.0  $\mu\text{m}$ , basal cells 16.0-27.0  $\mu\text{m}$  x 9.5-16.5  $\mu\text{m}$ . Cuticle smooth. Paraphyllia and underleaves not distinguishable with each other, variously shaped, linear, oblong to lanceolate, sometimes 2-4 lobed nearly at base. Rhizoids absent in aerial shoots.

Dioecious. Male plants up to 32.0 mm long and 4.0 mm wide, androecial branches terminal or intercalary or both, 2-3 in number at shoot apex; bracts in 5 pairs, closely imbricate, with dentate margin, dentitions 3-6 in number, 10.8-14.0 mm long, 7.2-12.0 mm wide, cells hexagonal to rectangular, thick walled with nodulose trigones, apical cells 8.0-15  $\mu\text{m}$  x 10-18  $\mu\text{m}$ , middle cells 15.0-24.0  $\mu\text{m}$  x 11.0-18.0  $\mu\text{m}$ , and basal cells 17.0-27.0  $\mu\text{m}$  x 13.5-18.0  $\mu\text{m}$ , basal half of bract forming a pocket, with 1-3 antheridia, mature antheridia with spherical body and biseriate, elongated stalk. Female plants up to 30 mm in length, 3.5-4.0 mm in width, perianth terminal on main axis, often with 1-2 subfloral innovations having perianth at apex. Perianth campanulate, laterally compressed, mouth arched, irregularly dentate, teeth usually 3-7 cells long variously oriented. Cells at apex 9.4-13.5  $\mu\text{m}$  x 5.5-10.8  $\mu\text{m}$ , median cells 10.8-18.0  $\mu\text{m}$  x 8.1-13.5  $\mu\text{m}$ , basal cells 14.8-24.3  $\mu\text{m}$  x 10.8-20.5  $\mu\text{m}$ . Bracts in single pair, ovate-oblong, 6.8-12.0 mm long, 8.8-13.6 mm wide, postical and antical margin toothed, cells hexagonal and with nodulose trigones, apical cells 16.0-21.8  $\mu\text{m}$  x 14.0-21.0  $\mu\text{m}$ , middle cells 19.0-29.0

$\mu\text{m}$  x 16.0-22.0  $\mu\text{m}$ ; basal cells 21-30  $\mu\text{m}$  x 13.5-21.0  $\mu\text{m}$ , archeogonia 18-22. Sporophyte with foot, seta and capsule; capsule oblong to ovate, immature, spores and elaters not seen.

### Specimens Examined

LWU 7000/83. *Plagiochila peradenyensis* Schiffn. Loc. : Government Botanical Garden-Ootacamund (Nilgiri hills- South India), alt. ca. 2250 m; Leg.: R. Udar *et al.*; Date: Sept. 26, 1983. Det.: S.C. Srivastava, P.K. Verma & S.A.H. Rizvi. LWU 7334/83. *Plagiochila peradenyensis* Schiffn. Loc.: Perumalmalai-Kodaikanal (Palni hills-South India), alt. ca. 2100 m; Leg.: R. Udar *et al.*; Date: Sept. 29, 1983. Det.: S.C.Srivastava, P.K. Verma & S.A.H. Rizvi.

**Habitat-** The plants grow epiphytically on angiospermic trees, in association with *Porella perrottetiana* (Mont.) Trev.

**Range-** Sri Lanka, India (South India- Tamil Nadu, Kodaikanal-Perumalmalai, Ootacamund- G.B.G.)

*Plagiochila peradenyensis* belongs to *Sect. Yokogurenses* (Inoue, 1979) in having *Frullania*-type branching, closely imbricate, ovate-oblong leaves with long decurrent base, campanulate perianth and nodulose trigones. This species is closely related to *Plagiochila phalangea* Tayl., a widely distributed Indian species of the same section, in branching pattern, leaf-cells and vestigial underleaves. But, it remarkably differs in number of teeth at leaf margin (15-20), absence of paraphyllia on ventral side and vestigially dentate perianth mouth in the latter.

### ACKNOWLEDGEMENT

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### PLATE 2

Figures 1-23: *Plagiochila peradenyensis* Schiffn.:

1. Male plant (Dorsal view). 2-8. Male bracts. 9. Basal cells of bract. 10. Median cells of bract. 11. Apical cells of bract. 12. Antheridia. 13. Female Plant (Dorsal view). 14,15. Female bract. 16. Basal cells of bract. 17. Median cells of bract. 18.

19. L.S. of perianth. 20. T.S. of perianth. 21. Basal cells of Perianth. 22. Median cells of perianth. 23. Apical cells of perianth.

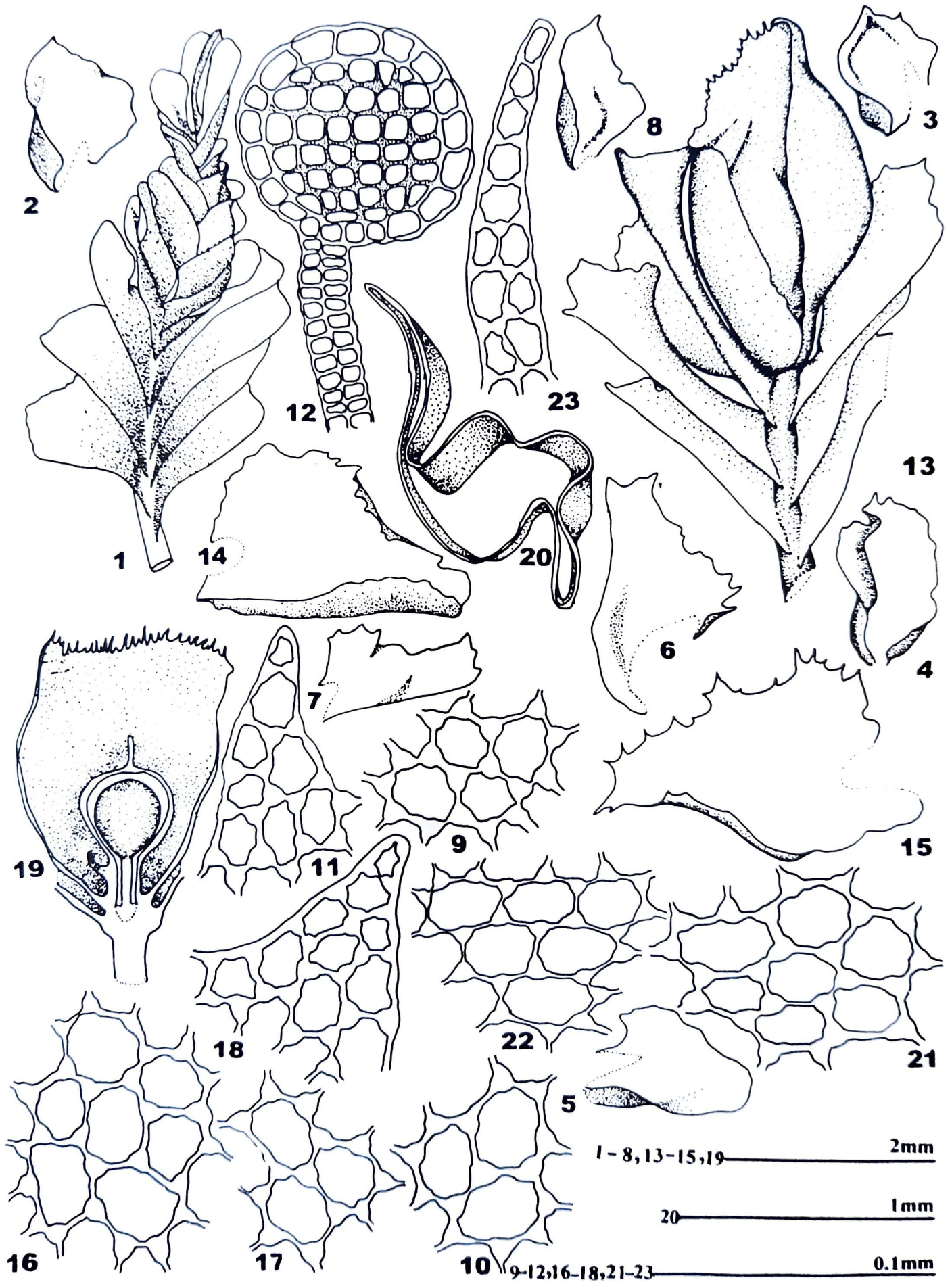


PLATE 2

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