



Seven families addition under class Polypetalae for flora of Todgarh-Raoli wildlife sanctuary, Rajasthan

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Todgarh-Raoli wildlife sanctuary is one of the protected areas expressing full range of habitat of Aravalli ecosystem. It is important from bio-geographical point of view the patches of Dhok and Salar forests. It has exceptional diversity and interspersed habitat which includes areas of Dhok, Salar, dryland, seasonal streams, cascading mountains and newly formed sand dunes, formed on western hill aspects and fine grooves of mixed wood lands. This sanctuary makes an ecotone between hilly forests of Aravallis and Thar desert situated in the north-west. The hills of this sanctuary acts like a barrier, checking eastward extension of desert. Because this sanctuary have potential to rich plant wealth, which attracts botanist. Rajasthan is endowed with a wealth of a wide range of vegetation. It represents 1910 plant species belonging to 779 genera and 153 families. Out of these, 624 species belonging to 257 genera and 68 families under Polypetalae class in Rajasthan (Shetty & Singh, 1987). In the Aravalli range, Polypetalae represents 445 species belonging to 213 genera and 62 families (Otaghavari *et al.*, 2015).

Todgarh-Raoli wildlife sanctuary is situated in most fragile ecosystem of Aravallis, is just 110 kms in the south-west of Ajmer. Geographically this sanctuary is situated between 73°40' – 74°10' east longitudes and 25°20' – 26°0' north latitudes, covers an area of 495.27 km² and extended in three districts viz., Rajsamand, Pali and Ajmer in the south-western part of Rajasthan state. It is one of the protected areas expressing full range of habitat of Aravalli ecosystem. The climate of this sanctuary is dryness, uncertainty of rainfall and great variation in temperature during different season in the year. The major tribal inhabiting in or around the sanctuary are Bhil, Meena, Garasiya *etc.*

Many researcher (Sharma *et al.*, 2005; Sharma and Katewa, 2007; Jain *et al.*, 2011; Kanther and Gena, 2012; Kanther 2018; Purohit, 2019; Purohit 2020a; Purohit 2020b; Purohit *et al.*, 2020; Sharma, 2019; Sharma and Khandal, 2019; Tomar and Sharma, 2019;) have been reported few plants from Todgarh-Raoli wildlife sanctuary and nearby area but some workers have done remarkable works *i.e.* Jain *et al.* (2007) have done work on ethno-medicinal plant of this sanctuary and reported 45 ethno-medicinal plant species belonging to 28 families. Galav *et al.* (2013) reported 54 species belonging to 34 families used by tribals as ethnoveterinary medicines in the sanctuary. Singh and Yadav

(2018) extensive work on medicinal important cucurbits of this sanctuary and reported medicinal importance of 5 species belonging to 5 genera. Kanther (2019) have done extensive work extensive vegetation of Todgarh-Raoli wildlife sanctuary and reported 301 species belonging to 84 families including with 141 species belonging to 107 genera and 41 families under class Polypetalae.

While working on the floristic diversity of the Todgarh-Raoli wildlife sanctuary (Rajasthan) during 2015 to 2019, author collected 11 plant samples from different locations of this sanctuary. These collected herbarium samples deposited at Botanical Survey of India, Jodhpur (BSJO). After critical study, scrutiny of literature (Blatter and Hallberg, 1920; Sharma and Tiagi, 1979; Chakravarty, 1982; Bhandari, 1990; Shetty and Singh, 1987; Tiagi and Aery, 2007; Datar *et al.*, 2013; Otaghvari *et al.*, 2015) and herbaria (BSJO, BSA, RUBL, JAC, BLAT, DCH, CAL), these plant samples identified under seven families *i.e.* Balsaminaceae, Caryophyllaceae, Elatinaceae, Geraniaceae, Polygalaceae, Ranunculaceae and Tamaricaceae. These families listed here alphabetically including plant species.

[I] Family: BALSAMINACEAE

1. *Impatiens balsamina* L. var. *balsamina* [Fig. 1]

Fl. & Fr.: Aug. – Nov.

Distribution: Bhilwara (Gangapur); Jhalawar (Sarhod); Pali (Paras Ram mahadev temple); Sirohi (Mount Abu); Udaipur (Kewada forest); Todgarh-Raoli Wildlife Sanctuary (Goramghat khai, Dewiar, Satpalia forest, Goramghat top).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bhim Range, Goramghat Khai, Rajsamand, 04-Aug-16, 25°38.120'N & 73°46.758'E, 476m, C.S. Purohit 33026 (BSJO 40727, 40728); Bhim Range, Dewair, Rajsamand, 15-Aug-16, 25°25.884'N and 73°48.017'E, 636m, C.S. Purohit 33222 (BSJO 41192, 41193); Todgarh-Raoli wildlife sanctuary, Bhim Range, Goramghat Top, 05-Sep-18, 25°39.994'N & 73°52.130'E, 943m, C.S. Purohit 33598.

[II] Family: CARYOPHYLLACEAE

2. *Polycarpea corymbosa* (L.) Lam.

Fl. & Fr.: Aug. – Dec.

Local name: Dholiphuli.

Distribution: Barmer (Tapara village); Bhilwara (Banas river bed); Bikaner (Rawla); Bundi (Kota dam); Dungarpur; Nagaur (Thanwla); Sirohi (Mount Abu); Tonk (Rajmahal R.F.); Todgarh-Raoli Wildlife Sanctuary (Khodiya Naka).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bijajiguda Range, Khodiya Naka, Pali, 08-Aug-16, 25°54.234'N & 74°00.159'E, 397m, C.S. Purohit 33138 (BSJO 40862, 40863).

3. *Silene conoidea* L.

Fl. & Fr.: February - April.

Local name: Gidarkanno

Distribution: Bhilwara (Kharidam); Bikaner (Khara); Ganganagar (Kumbhalgarh); Jaipur (on Tonk road); Kota (Sitabari); Todgarh-Raoli wildlife sanctuary (Pachanpura).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bijajiguda Range, Pachanpura, 25-Feb-19, 25°57.677'N and 74°03.420'E, 377m, C.S. Purohit 31089;

4. *Spergula arvensis* L.

Fl. & Fr.: July - Nov.

Distribution: Todgarh-Raoli wildlife sanctuary (Pachanpura village).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bijajiguda Range, Pachanpura, 25-Feb-19, 25°57.677'N and 74°03.420'E, 377m, C.S. Purohit 31088;

5. *Spergula fallax* (Lowe) Krause

Fl. & Fr.: December - March.

Local name: Khandidal.

Distribution: Banswara (Ghatol); Barmer (Piplum); Bikaner (College campus); Kota; Sawaimadhopur; Todgarh-Raoli wildlife sanctuary (Aasan).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bijajiguda Range, Aasan-Mata Temple, 23-Feb-19, 25°57.117'N and 74°07.938'E, 442m, C.S. Purohit 31066;

[III] Family: ELATINACEAE

6. *Bergia aestivosa* (Wight & Arn.) Steud.

Fl. & Fr.: Oct. - Feb.

Distribution: Barmer; Jaipur (Gujar ki Dhani, Amer, Bhandana); Todgarh-Raoli Wildlife Sanctuary (Modia village).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Raoli Range, Modia village, 12 Nov. 2017, 25°46.396'N and 73°57.060'E, 457m, C.S. Purohit 33305;

7. *Bergia ammannioides* Roth.

Fl. & Fr.: Throughout the year.

Local name: Jalbhagara.

Distribution: Banswara; Bikaner (Sagar pond); Chittorgarh (Bassi); Ganganagar (79 GB); Jaipur (Bhandana); Jaisalmer (Bendalai tank); Kota (Baran); Nagaur (Harsolav pond); Sirohi (Mount Abu); Todgarh-Raoli wildlife sanctuary (Modia village, Sarkaniya beri, Jamun mata temple, Dodiyo ka kheda, Halela);

Specimen examined: Todgarh-Raoli wildlife sanctuary, Raoli Range, Modia village, 12 Nov. 2017, 25°46.396'N & 73°57.060'E, 457m, C.S. Purohit 33304 (BSJO 39893, 39894); Todgarh-Raoli wildlife sanctuary, Jojawar Range, Sarkaniya Beri, 25-Nov-17, 25°45.729'N & 73°54.944'E, 451m, C.S. Purohit 33468; Todgarh-Raoli wildlife sanctuary, Bhim Range, Jamun mata temple, 10-Sep-18, 25°25.381'N & 73°45.588'E, 443m, C.S. Purohit 31038; Todgarh-Raoli wildlife sanctuary, Bhim Range, Dodiyo ka kheda, Halela, 07-Mar-19, 25°22.685'N and 73°48.007'E, 739m, C.S. Purohit

38050;

[IV] Family: GERANIACEAE

8. *Monsonia senegalensis* Guill. & Perr. [Fig. 2]

Fl. & Fr.: July. - Oct.

Distribution: Ajmer; Bhilwara (Kotra village); Jaisalmer (Miajlar); Jodhpur (Kailana); Pali (Piprol R.F.); Todgarh-Raoli Wildlife Sanctuary (Modia, Kundal).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Raoli Range, Modia, Ajmer, 29-Jul-16, 25°46.396'N & 73°57.060'E, 457m, C.S. Purohit 32890 (BSJO 40566, 40567); Bijajiguda Range, Kundal, 07-Aug-16, 26°00.140'N & 74°10.175'E, 441m, C.S. Purohit 33107 (BSJO 40915).

[V] Family: POLYGALACEAE

9. *Polygala erioptera* DC.

Fl. & Fr.: Throughout the year.

Local name: Sarbhagolia.

Distribution: Banswara (Dagia-Bowji, Ghatol); Bikaner (Panchu); Ganganagar (Pallu); Jaisalmer (Sam); Jhunjhunu (Pilani); Kota (Shahabad); Nagaur (Vishnu Pond, Merta City); Sirohi (Mount Abu); Tonk (Kachhabundh); Todgarh-Raoli Wildlife Sanctuary (Taheshwar Mahadev).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bijajiguda Range, Taheshwar Mahadev, Pali, 29-Jul-16, 25°49.954'N and 73°56.474'E, 426m, C.S. Purohit 32902 (BSJO 40598, 40599);

[VI] Family: RANUNCULACEAE

10. *Ranunculus muricatus* L. [Fig. 2, Fig. 3]

Fl. & Fr.: Feb. - May.

Distribution: Sirohi (Mount Abu); Jhunjhunu (Pilani); Todgarh-Raoli wildlife sanctuary (Wakali kui).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Bhim Range, wakali kui, Tegi, 05-Mar-19, 25°26.249'N and 73°52.964'E, 677m, C.S. Purohit 38041.

[VII] Family: TAMARICACEAE

11. *Tamarix aphylla* (L.) Karst.

Fl. & Fr.: Aug. - Sept.

Local name: Fransh.

Distribution: Ajmer (Govindgarh); Bikaner (Ghoghra); Churu (Sujangarh); Jaipur (Chaksu); Jaisalmer (Ramgarh); Jhalawar; Nagaur (Nagaur); Pali (Guda); Todgarh-Raoli Wildlife Sanctuary (Kabradata).

Specimen examined: Todgarh-Raoli wildlife sanctuary, Raoli Range, Kabradata, 10 Nov. 2017, 25°42.736'N & 73°55.517'E, 445m, C.S. Purohit 33236 (BSJO 41217, 41218).

During the course of field exploration of Todgarh-Raoli wildlife sanctuary during 2015 to 2019, authors demarcated and collected 19 plant samples and identified with the help of literature. Results are in following points *i.e.*

[1]. Family addition for Flora of Todgarh-Raoli wildlife sanctuary

Kanther (2019) have done extensive work extensive vegetation of Todgarh-Raoli wildlife sanctuary and reported 301 species belonging to 84 families including with 141 species belonging to 107 genera and 41 families under Class Polypetalae. But in addition with these seven families *i.e.* Balsaminaceae, Caryophyllaceae, Elatinaceae, Geraniaceae,

Polygalaceae, Ranunculaceae and Tamaricaceae are first time reported from this sanctuary. These seven families in addition under class polypetalae for Flora of Todgarh-Raoli wildlife sanctuary.

[2]. Addition for Flora of Aravalli Range

Otaghvari *et al.* (2015) have done extensive work on flora of Aravalli range and reported 445 species belonging to 213 genera and 62 families under Class polypetalae. In this paper, *Spergula arvensis* L. is first time report from Aravalli range and addition for flora of Aravalli range.

[3]. Generic addition for Flora of Todgarh-Raoli wildlife sanctuary

Kantr (2019) reported 107 genera under Class Polypetalae from this sanctuary. In this paper, Nine genera i.e. *Bergia*, *Impatiens*, *Monsonia*, *Polycarpaea*, *Polygala*, *Ranunculus*, *Silene*, *Spergula* and *Tamarix* are first time report and generic addition under class polypetalae for flora of Todgarh-Raoli wildlife sanctuary.

[4]. Species addition for Flora of Todgarh-Raoli wildlife sanctuary

Kantr (2019) reported 141 species under Class Polypetalae from this sanctuary. In this paper, eleven species i.e. *Bergia aestivosa* (Wight & Arn.) Steud.; *Bergia ammannioides* Roth.; *Impatiens balsamina* L. var. *balsamina*; *Monsonia senegalensis* Guill. & Perr.; *Polycarpaea corymbosa* (L.) Lam.; *Polygala erioptera* DC.; *Ranunculus muricatus* L.; *Silene conoidea* L.; *Spergula arvensis* L.; *Spergula fallax* (Lowe) Krause and *Tamarix aphylla* (L.) Karst. are first time report and addition under class polypetalae

for flora of Todgarh-Raoli wildlife sanctuary.

Present paper deals with seven families i.e. Balsaminaceae, Caryophyllaceae, Elatinaceae, Geraniaceae, Polygalaceae, Ranunculaceae and Tamaricaceae are first time reported from this sanctuary. one species *Spergula arvensis* L. is first time report from Aravalli range and addition for flora of Aravalli range. Nine genera i.e. *Bergia*, *Impatiens*, *Monsonia*, *Polycarpaea*, *Polygala*, *Ranunculus*, *Silene*, *Spergula* and *Tamarix* are first time report and generic addition under class polypetalae for flora of Todgarh-Raoli wildlife sanctuary and eleven species i.e. *Bergia aestivosa* (Wight & Arn.) Steud.; *Bergia ammannioides* Roth.; *Impatiens balsamina* L. var. *balsamina*; *Monsonia senegalensis* Guill. & Perr.; *Polycarpaea corymbosa* (L.) Lam.; *Polygala erioptera* DC.; *Ranunculus muricatus* L.; *Silene conoidea* L.; *Spergula arvensis* L.; *Spergula fallax* (Lowe) Krause and *Tamarix aphylla* (L.) Karst. are first time report and addition under class polypetalae for flora of Todgarh-Raoli wildlife sanctuary.

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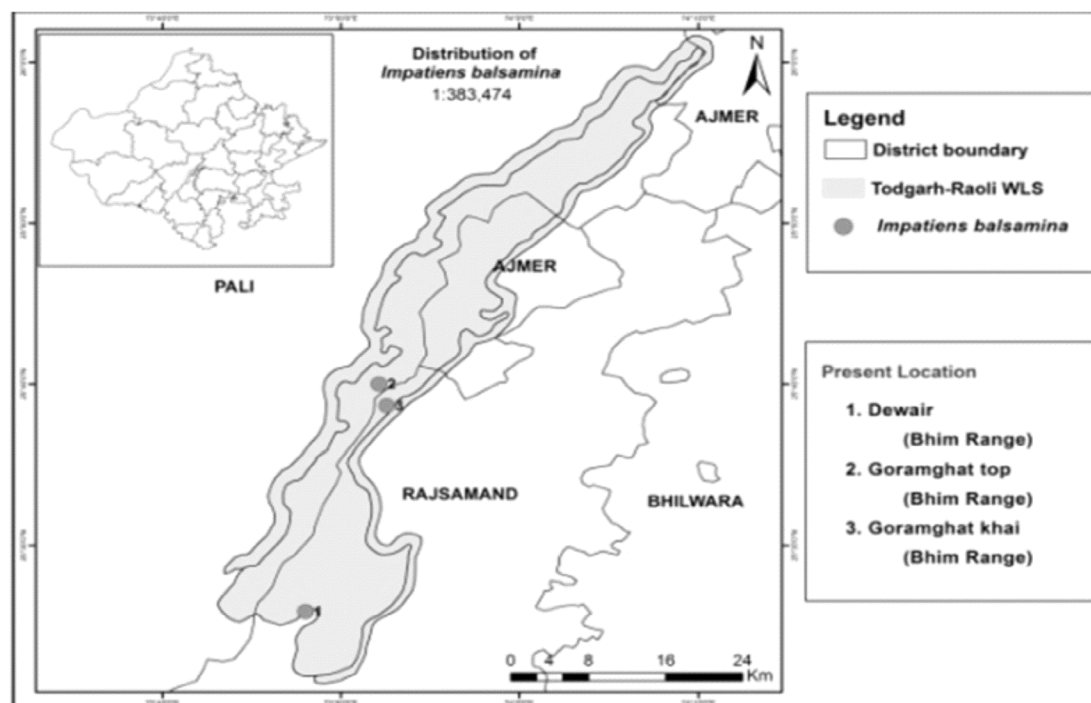


Fig.1. Map of *Impatiens balsamina*

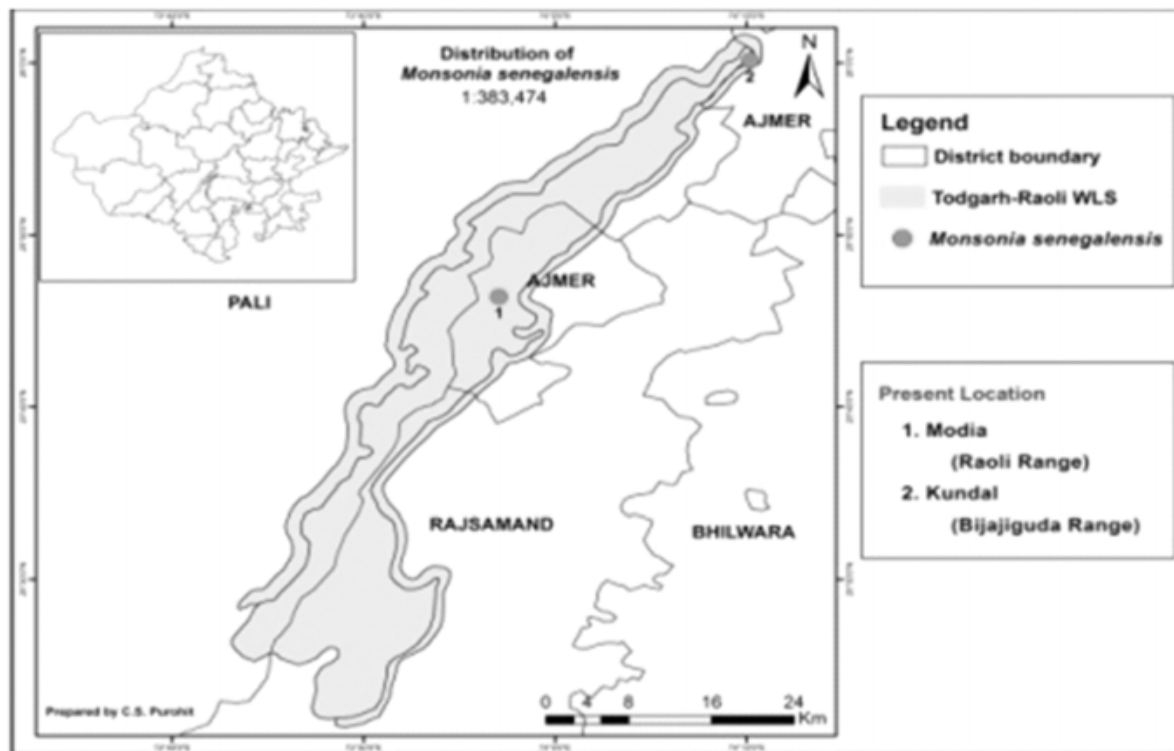


Fig.3. Map of *Monsonia senegalensis*

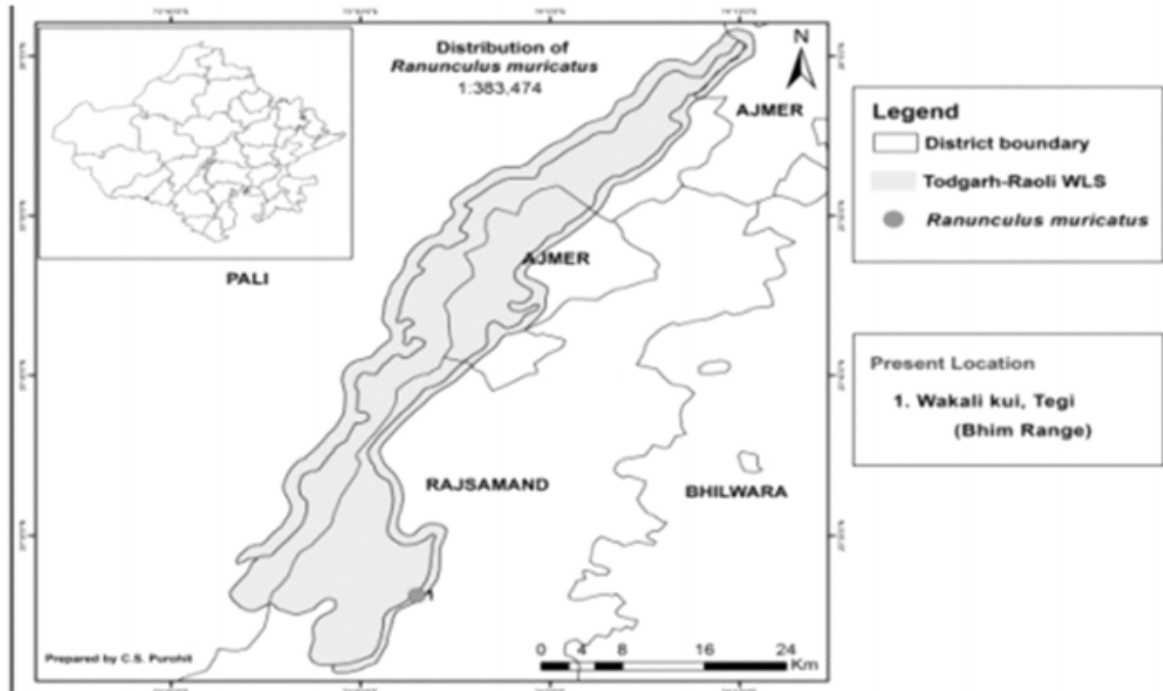


Fig. 3. Map of *Ranunculus muricatus*

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