**Supplementary table 2:** List of *Polycarpaea* (Caryophyllaceae) species known from SW Asia which we could not test their photosynthetic type because of absence of material.

| Species                        | Life form | Chorotype | Ecotype        | Distribution                        |
|-------------------------------|-----------|-----------|----------------|-------------------------------------|
| *Polycarpaea kurieensis* Wagner | H         | SM        | XE, O-I-Tr     | Endemic to Soqotra                  |
| *Polycarpaea balfourii* Briq.  | T         | SM        | O, XE-Tr       | Endemic to Soqotra                  |
| *Polycarpaea hayoides* D.F.Chamb. | T      | SM        | XE, O-Tr       | Endemic to Soqotra                  |
| *Polycarpaea jazirensis* P.A.Clement | H     | SM        | PS-Tr          | Oman, Yemen                         |
| *Polycarpaea pulvinata* M.G. Gilbert | Ch    | SM        | O-I-Tr         | Yemen                               |
| *Polycarpaea paulayana* Wagner | T         | SM        | PS-L-Tr        | Endemic to Soqotra                  |
| *Polycarpaea robbairea* (Kuntze) Greuter & Burdet | T or H | SM, SS    | PS, O, R-Tr    | Saudi Arabia, Yemen, Oman, UAE, Qatar, Kuwait, Jordan, Palestine/Israel |