**Appendix A. Supplementary data:**

**Table A.** Palynological assemblages recovered from positive samples.



**~~Table B.~~ Table B1 to B10.** U-Pb dating results from the Semblana, Monte Branco and Rosa Magra samples.





















**Plate I.** Selected palynomorphs from Semblana region. Plate captions give the taxonomic name of the figured specimen, followed by drill hole, sample number, Formation, slide and microscope coordinates. Scale bar: 50 µm. 1. *Raistrickia nigra* Love 1960, Drill hole PSS42A-2, sample 1-480.0 m, Godinho Fm., slide 1, 1245-34; 2. *Raistrickia nigra* Love 1960, Drill hole PSS42A-2, sample 1-480.0 m, Godinho Fm., slide 1, 1355-220; 3. *Waltzispora* sp., Drill hole PSS42A-2, sample 1-480.0 m, Godinho Fm., slide 1, 1375-80; 4. *Convolutispora* sp., Drill hole PSS42A-2, sample 1-480.0 m, Godinho Fm., slide 1, 1158-152; 5. *Emphanisporites annulatus* McGregor 1961, Drill hole PSS42A-2, sample 37-1 118.0 m, PQ Fm., slide 1, 1050-115; 6. *Densosporites* sp., Drill hole PSS42A-2, sample 1-480.0 m, Godinho Fm., slide 1, 1220-75; 7. *Ancyrospora* sp., Drill hole PSS42A-2, sample 37-1 118.0 m, PQ Fm., slide 1, 1235-85; 8. *Geminospora lemurata* Balme *emend.* Playford 1983, Drill hole PSS42A-2, sample 37-1118.0 m, PQ Fm., slide 1, 1165-125; 9. *Rugospora flexuosa* (Jushko) Streel 1974; Drill hole PSS42A-2, sample 37-1 118.0 m, Fm. PQ, slide 1, 1335-88; 10. *Rugospora explicata* Gonzalez Playford & Moreno 2005; Drill hole PSS42A-2, sample 37-1 118.0 m, PQ Fm., slide 1, 1256-120; 11. *Gorgonisphaeridium* sp., Drill hole PSS42A-2, sample 37-1 118.0 m, PQ Fm., slide 1,1455-135; 12. *Maranhites* sp., Drill hole PSS42A-2, sample 37-1 118.0 m, PQ Fm., slide 1, 1432-136.