POLLEN MORPHOLOGY OF FAMILY ROSACEAE IN KABAL VALLEY SWAT PAKISTAN

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This thesis is submitted to the Center for plant Sciences and Biodiversity University of Swat in partial fulfillment of the requirements for the degree of

MSc Botany

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Author's Declaration

I **Shujat Ali** and **Sidratul Muntaha** hereby declare that the thesis entitle **"Pollen Morphology of Family Rosaceae in Kabal Valley Swat Pakistan"** is my original work that I have produced under the guidance of my supervisor **Dr. Zahid Ullah**. Information from any source have been duly cited. I have not previously presented any part of this work elsewhere for any other degree in this or any other University.

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CERTIFICATE

This thesis submitted by **Shujat Ali** Roll No. 1508038 and **Sidratul Muntaha** Roll No. 1508029, entitled "Pollen Morphology of Family Rosaceae in Kabal Valley Swat Pakistan" is accepted in the present form by the Center for Plant Sciences and Biodiversity, University of Swat, as satisfying the thesis requirements for the award of the degree of **MSc Botany.**

Supervisor _____

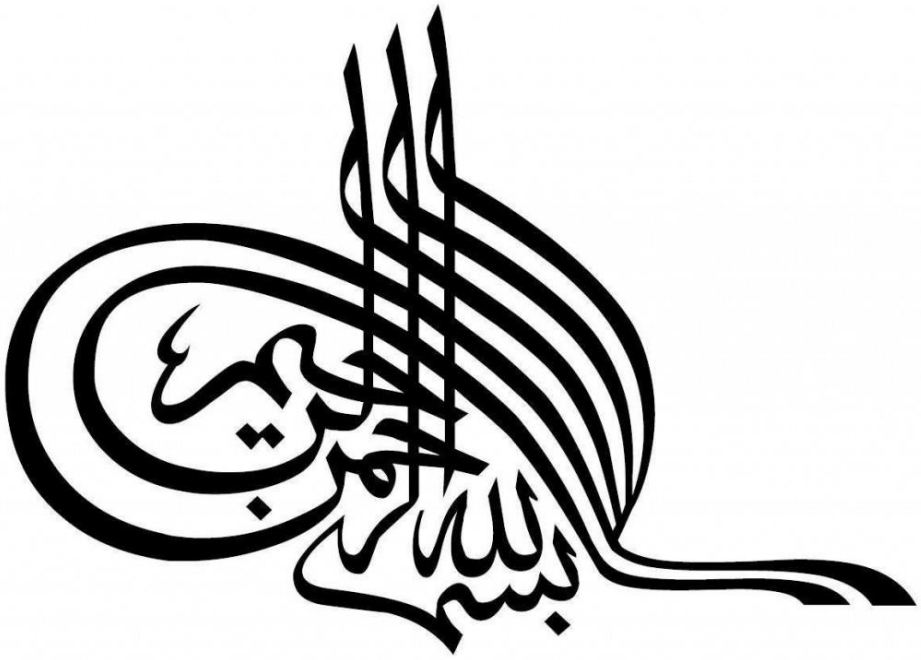
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In the name of Allah,
the Most Beneficent,
the Most Merciful

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My Allah said, “Behold, I have given you all plant yielding seed which is upon the face of all the earth, and each tree with seed in its fruit; you shall have them for food. And to every creature of the earth, and to every bird of the air, and to everything that creeps on the earth, everything that has the breath of life, I have given every green plant for food.” And it was so. (Gen 1:29-30).

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ABSTRACT

Systematic studies based on pollen morphology of 40 species representing 13 genera of the family Rosaceae including *Cotoneaster, Duchesnea, Fragaria, Filipendula*, *Malus, Prunus*, *Potentilla, Pyrus, Rosa, Cydonia, Geum, Rubus* and *Sorbaria* have been investigated from Tehsil Kabal district Swat (Pakistan) by light microscopy. The study is based on field collected specimens from wild habitats throughout tehsil Kabal and also some herbarium specimens collected in recent years. Both qualitative and quantitative features of pollen grains such as length of polar axis (L), equatorial diameter (E), exine thickness, shape in polar and equatorial view, number and type of apertures, exine sculpturing pollen type and class and P/E ratio were examined. Results of the studies show that pollen in the investigated genera were tri-colporate, tri-zonocalporate and rarely tricolpate. Pollen grains were monad, radially symmetrical, isopolar, prolate, sub-prolate, prolate-spheroidal, and rarely oblate-spheroidal. The polar axis (L) length varied from (11.25 to 51.25) and equatorial diameter (E) varied from (8.75 to 62.5). The largest length of polar axis (51.25) µm and equatorial diameter (62.5) µm were observed in *Prunus persica*. The smallest length of polar axis (16.25) µm and equatorial diameter (8.75) µm were observed in *Cotoneaster affinis* Lindl. The P/E ratio ranged varied from (0.82-1.88) and exine thickness varied from (1.5 to 2.5). Pollen morphology showed considerable variation among the taxa investigated and is very helpful in identifying and separating species from each.