**Supplementary material**

**Figure S1.** Mean temperature of the period (MTP), distribution for ten months of the Tara reproductive period in the altitude classes in the altitudinal gradient between 2021 and 3101 m. The mean was accompanied by the bootstrap method's non-parametric confidence interval (CI, 95%).

**Figure S2.** Altitudes in the agroforestry environment of Tara and some soil chemical properties with significant differences. (a) phosphorus (P), (b) potassium (K), (c) boron (B), (d) zinc (Zn), (e) calcium carbonate ($CaCO_3$) and (f) iron (Fe). Mean followed by the bootstrap method's non-parametric confidence interval (CI, 95%).

**Figure S3**. Altitude 3007 m in the natural and agroforestry environment of Tara and some soil chemical properties with significant differences. Cation exchange capacity (CEC) (a), calcium carbonate ($CaCO_3$) (b), phosphorus (P) (c), potassium (K) (d), boron (B) (e) and iron (Fe) (f). The mean was followed by the bootstrap method's non-parametric confidence interval (CI, 95%).

**Figure S4.** Altitudes in the agroforestry and natural environment together of Tara, and some soil chemical properties with significant differences. (a) calcium carbonate ($CaCO_3$) and (b) iron (Fe). The mean was followed by the bootstrap method's non-parametric confidence interval (CI, 95%).

**Figure S5.** Altitudes in the natural environment of Tara and some soil chemical properties with significant differences. (a) zinc (Zn), (b) copper (Cu), (c) manganese (Mn), (d) cation exchange capacity (CEC), (e) calcium carbonate ($CaCO_3$) and (f) iron (Fe). The mean was followed by the bootstrap method's non-parametric confidence interval (CI, 95%).