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Plant and microbial biodiversity in urban forests and public gardens: insights for cities' sustainable development

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Highlights

- The biodiversity of two typologies of urban green spaces were studied
- Both gardens and forests showed high floristic diversity
- Public gardens comprise higher percentage cover of exotic taxa
- Forests comprise more taxa with significant ecological and conservation value
- Soil microbial communities were distinct in each typology

Abstract

As the world's population gets increasingly more urban, the preservation of urban green spaces becomes an important issue in the political agenda worldwide. These spaces may mitigate the negative environmental impacts of urbanisation and improve quality of life. Aiming to increase knowledge in urban biodiversity we compared the diversity of vascular plants and soil microbial communities (fungi and bacteria) in two contrasting typologies of urban green spaces (public gardens and remnant forests) in the city of Coimbra (Portugal). We found 252 taxa of vascular plants of which 58% were native and 42% exotic. Although overall diversity indices were similar in both typologies of green spaces, species richness and percentage cover of native taxa were significantly higher in forests than in gardens. Overall, plant communities in the two typologies of green spaces were distinct. We found high variability among gardens, which is