INTRODUCTION

In South Africa, approximately 3,000 plant species are used for medicinal purposes from plants that are either exported or traded at local traditional markets (Van Wyk et al., 1997). Southern Africa is famous for its plant diversity, with almost 30,000 species of flowering plants accounting for about 10% of the world’s vascular plants. Of these, an estimated 3,500 species are succulents occurring throughout South Africa and Namibia (Van Wyk and Gericke, 2000). The Faraday traditional medicinal market is dedicated to the trade of plant and animal materials used in traditional medicine (‘muthi’). Quantifying the illegal trade of succulent plant species at the market has not yet been undertaken exhaustively. It remains challenging to distinguish between the various succulent species due to the majority of traded species being either dried, crushed or withered.

RESULTS AND DISCUSSION

Unmasking the succulent plant trade at the Faraday medicinal market and to determine their conservation status by using DNA barcoding as an identification tool.

AIMS:
This study aims to identify the various succulent species traded at the Faraday medicinal market and to determine their conservation status by using DNA barcoding as an identification tool.

MATERIAL AND METHODS

Market sampling

Plants were collected for the first six months of 2017 from different stalls found at the Faraday medicinal market (Fig. 1). In total, 18 samples were collected and stored in silica gel after which voucher numbers were assigned to each.

DNA barcoding

DNA extraction using the 10×CTAB method described by Doyle and Doyle (1987) was conducted. Standard DNA barcoding protocols (CBOL Plant Working Group, 2009) were carried out to sequence the core barcoding regions. (55%) resulted in high numbers of ambiguous species level identifications. However, when ‘BLASTing’ queries using


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levels of species traded (44%) are categorised as Least Concern. A further 6% are categorised as Endangered, 25% are Vulnerable and 12% are Near Threatened. Limited data is available for 13% of the species sampled (Fig. 2A).

Court (2010), identified eight (8) succulent flora families in southern Africa. 5 of these 8 families were found to be traded at the market (Fig. 2B).

Also, Optunia wilcoxii (Cactaceae, indicated in red; Fig. 2B), a category 1b species on the NEMBA invasive species list was identified on the market (Fig. 2B). Cactaceae is a family that is native to the Americas with the exception of Rheh-salis baccifera that is native to both the Americas’ as well as Central and southern Africa.

Williams et al. (2001) identified 22 succulent taxa traded at the market. Using only morphological features, 27% of these samples could be identified to species level. In this study using DNA barcoding, 72% of the 18 taxa collected was identified to species level (Fig. 2C).

CONCLUSION

This study provides an important list of succulent plant species currently traded at the Faraday medicinal market that are endangered or likely to become endangered due to over-exploitation and highlights the importance of sustainable management of wild medicinal plants sold at the market.

REFERENCES


