

ABSTRACT

ETHNOPHARMACOLOGICAL RELEVANCE: Plants from Kenyan flora are traditionally used against many ailments, including cancer and related diseases. Cancer is characterized as a condition with complex signs and symptoms. Recently there are recommendations that ethnopharmacological usages such as immune and skin disorders, inflammatory, infectious, parasitic and viral diseases should be taken into account when selecting plants that treat cancer. **AIM:** The present study was aimed at investigating the cytotoxicity of a plethora of 145 plant parts from 91 medicinal plants, most of which are used in the management of cancer and related diseases by different communities in Kenya, against CCRF-CEM leukemia cell line. **MATERIALS AND METHODS:** Extracts from different plant parts (leaves, stems, stem bark, roots, root barks, aerial parts and whole herb) were obtained by cold percolation using different solvent systems, such as (1:1v/v) dichloromethane (CH₂Cl₂) and n-hexane (1), methanol (MeOH) and CH₂Cl₂ (2); neat MeOH (3), 5% H₂O in MeOH (4) and with ethanol (EtOH, 5); their cytotoxicity was determined using the resazurin reduction assay against CCRF-CEM cells. **RESULTS:** At a single concentration of 10 µg/mL, 12 out of 145 extracts exhibited more than 50% cell inhibition. These include samples from the root bark of *Erythrina sacleuxii* (extracted with 50% n-hexane-CH₂Cl₂), the leaves of *Albizia gummifera*, and *Strychnos usambarensis*, the stem bark of *Zanthoxylum gillettii*, *Bridelia micrantha*, *Croton sylvaticus*, and *Albizia schimperiana*; the root bark of *Erythrina burttii* and *Erythrina sacleuxii* (extracted with 50% CH₂Cl₂-MeOH), the stem bark of *Bridelia micrantha* and *Zanthoxylum gillettii* (extracted using 5% MeOH-H₂O) and from the berries of *Solanum aculeastrum* (extracted with neat EtOH). The EtOH extract of the berries of *S. aculeastrum* and *A. schimperiana* stem bark extract displayed the highest cytotoxicity towards leukemia CCRF-CEM cells, with IC₅₀ values of 1.36 and 2.97µg/mL, respectively. Other extracts having good activity included the extracts of the stem barks of *Zanthoxylum gillettii* and *Bridelia micrantha* and leaves of *Strychnos usambarensis* with IC₅₀ values of 9.04, 9.43 and 11.09µg/mL, respectively. **CONCLUSIONS:** The results of this study provided information related to the possible use of some Kenyan medicinal plants, and mostly *S. aculeastrum*, *A. schimperiana*, *C. sylvaticus*, *Z. gillettii*, *B. micrantha* and *S. usambarensis* in the treatment of leukemia. The reported data helped to authenticate the claimed traditional use of these plants. However, most plants are used in combination as traditional herbal concoctions. Hence, the cytotoxicity of corresponding plant combinations should be tested in vitro to authenticate the traditional medical practitioners actual practices.