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Letter to Editor

Natural Based Anticancer Drugs and Their Worthiness

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Dear Editor,

With the prevalence of every type of cancer increasing globally, the inability to treat and the severe side effects caused by chemotherapy and radiotherapy are some of the biggest problems facing cancer patients and their physicians.[1]

Many herbal medicines have replaced their chemical rivals; for example, emetine lost its ground to metronidazole as an amoebicidal agent, and digoxin has given its place to ACE inhibitors for treating congestive heart failure. Their use has particular importance in some areas due to the widespread side effects of synthetic drugs, especially in the treatment of incurable diseases such as cancer.[2]

It is noteworthy that several natural anticancer agents are provided by lower organisms. For example, the anti-hyperlipidemic agent lovastatin comes from *Aspergillus terreus*, the immunosuppressant cyclosporin A is derived from *Beauveria nivea*, and some antibiotics (bleomycin, dactinomycin, daunorubicin, doxorubicin, mitomycin, plicamycin, streptozocin) also fall into this category; however, other higher plants have produced more complicated contributions as secondary metabolites. Among those, the antileukaemic alkaloids vinblastine and vincristine which are obtained from *Catharanthus roseus* are noted as earlier instances. Other popular and important plant components for use as anticancer agents are etoposide and teniposide which are isolated from *Podophyllum peltatum* and are effective against many types of tumors, and taxoids that are obtained from crude extracts of the bark of the *Taxus brevifolia* and are significantly active against ovarian cancer, advanced breast cancer, small and non-small cell lung cancer. Furthermore, these cases should be noted: Shikonin (from *Lithospermum erythrorhizon*), curcuminoid (from *Curcuma longa*), camptothecin (from *Camptotheca acuminate),* and ingenol mebutate (from *Euphobia peplus*), Trastuzumab emtansine (Kadcyla) which is an antibody conjugated to a synthetic derivative of the cytotoxic principle of the Ethiopian plant *Maytenus ovatus* and used to treat breast cancer.[3]

Although more than half of the anticancer compounds used to treat cancer are obtained from plant sources or marine and microorganisms, it seems that there is still little knowledge about the power of natural resources in the face of incurable diseases such as cancer.[4] Finally, the fewer side effects, availability, and lower cost of drugs obtained from plants compared to synthetic samples, especially for cancer patients who have weakened immune systems, make alternative medicine a very important issue. Expanding man's knowledge on the discovery and use of these natural compounds requires a greater investment by related companies and more attention from the academic community and researchers.

Conflict of Interest Disclosures

None to be declared.

Ethical Approval

Not applicable.

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