

**RESEARCH PREVIEW ON IMPROVING NICOSAN™/XICKLE™
A PHYTO-MEDICINE FOR THE TREATMENT OF SICKLE CELL DISEASE**

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Objective of Purpose: NICOSAN™/XICKLE™ is a promising phyto-medicine for the treatment of sickle cell disease (SCD) that is prepared from 4 different plants. Using plants as raw materials, it has been difficult to standardize the level of antisickling activity of the drug. We have been studying the relationships of the level of antisickling activity with the purpose of preparing a complex botanical with consistently strong antisickling elements by determining the influences of the 1) the age of the plants and 2) the location at which plants were grown, where the growing conditions differ

Method: One of the components of NIPRISAN is Sorghum bicolor leaves, so we collected sorghum seeds from 19 different countries and looked for plants with early germination, robust growth, early maturity and ability to respond to the addition of certain compounds, leading to antisickling property. Also, resistance to disease and pests and low water requirement (able to grow in dry region) are important properties. For this experiment, seeds obtained from the 19 countries were planted. After leaves started to sprout, the leaves were collected every month (1st to 6th month) and analyzed for antisickling activity at the Sickle Cell Disease Reference Laboratory at The Children's Hospital of Philadelphia and by high-performance liquid chromatography (HPLC) at Xechem Inc.

Results: Improvements in the standardization and the potency of NICOSAN™/XICKLE™ using different cultivars of sorghum bicolor harvested at different times under different growing conditions were examined. The results will be reported. If early emerging leaves have high antisickling activity, it will improve the cost-effectiveness of producing NICOSAN™/Xickle™.

Conclusion: The development of methods that lead to early harvest of the component plants will lead to a cost-effective method of mass production of NIPRISAN. The manufacturing of NIPRISAN from these plants will follow cGMP practice. These findings will be critical for obtaining FDA approval of this phyto-medicine.