Summary and Conclusion
The strategies for selection of banana pseudostem and rhizome for this present research was due to its high therapeutic uses in traditional medicine and few reports on bioactive properties and phytochemical constituents on different morphological parts of banana plant. A work on these aspects, which we believe has some commercial applications. Accordingly the summary of the systematic work that has been carried out on banana pseudostem and rhizome is presented below.

1. Banana pseudostem var. Nanjanagudu Rasbale showed high total phenol and flavonoid content concomitantly higher antioxidant activities in all the in vitro assays tested, when compared to other commercial varieties of banana. Hence, banana var. Nanjanagudu Rasbale was selected for the detailed investigation.

2. Acetone extract of banana rhizome var. Nanjanagudu Rasbale proved to be more potent in terms of polyphenols (total phenol and flavonoid content) and antioxidant activity along with platelet aggregation inhibitory activity and cytotoxicity properties. Whereas, chloroform extract exhibited higher antibacterial activity along with moderate platelet aggregation inhibitory activity and cytotoxicity properties. Hence, both acetone and chloroform extract were selected for the isolation, purification and characterization of antioxidant and antimicrobial compounds respectively.

3. Antioxidant guided repeated silica gel column chromatography from acetone extract yielded bioactive compound chlorogenic acid. This is reported for the first time in banana rhizome of var. Nanjanagudu Rasbale, but not in any other morphological part of banana plant. Antimicrobial guided repeated silica gel column chromatography from chloroform extract yielded 4-epicyclomusalenone
and cycloeucalenol acetate. These compounds are reported for the first time in banana rhizome of var. Nanjanagudu Rasbale.

4. Diet enriched with dried acetone extract of banana rhizome var. Nanjanagudu Rasbale showed convincing antidiabetic effect in streptozotocin induced diabetic rats. Accumulated experimental evidences on basic metabolic parameters, intestinal and renal disaccharidase enzymes along with natural antioxidant enzymes status and lipid peroxidation levels in liver, kidney and serum provided invincible indications of multiple protections against oxidative stress induced diabetic rats.

5. RTS beverages and dehydrated powders from banana plant bio-waste viz. pseudostem and rhizome var. Nanjanagudu Rasbale were formulated. Nutraceutical/bioactive polyphenols (phenolics and flavonoids) and antioxidant activities in standardized RTS beverages and dehydrated powders were enumerated.
Accumulated experimental evidences and characterization of chlorogenic acid, 4-epicyclomusalenone and cycloeucalenol acetate in this research work clearly indicated that bio-waste (viz., pseudostem and rhizome) of banana var. Nanjanagudu Rasbale could be a potential source of nutraceuticals. *In vivo* evaluation of banana rhizome extract provided multi thronged protection against streptozotocin induced diabetic rats. Which validate the use of pseudostem and rhizome to cure diabetes in traditional medicine. Optimization of acceptable products from pseudostem and rhizome may have commercial application. In this regard banana rhizome var. Nanjanagudu Rasbale found its niche as promising health food/nutraceutical supplement for antidiabetic foods. Ample scope is envisaged in use of banana rhizome as a strategy to counteract the negative effect of other oxidative stress induced degenerative diseases in human beings.