



Quantification of Biochemical Parameters in Araikeerai (*Amaranthus tritis*) and Agati (*Sesbania grandiflora*)

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ABSTRACT

Based on the preliminary qualitative screening of phytochemicals, the quantitative analysis of phytochemicals was performed in the dried powder of Araikeerai (*Amaranthus tritis*) and Agati (*Sesbania grandiflora*). In this evaluation, biochemical constituents such as Total chlorophyll, carotenoids, Total carbohydrate, and cellulose of Agati were found to be higher than Araikeerai. On the contrary the phytonutrients such as Total phenol and protein of Agati were experimentally less compared to Araikeerai. From the findings both the green leafy vegetables are significant source of phytonutrients which varies in their quantity makes it as a nutritional food.

Keywords: *Amaranthus tritis*, *Sesbania grandiflora*, Total chlorophyll, carotenoids, cellulose, total carbohydrate.

INTRODUCTION

Phytochemicals in most of the plants are able to promote health on many different levels in their extracts. The selected green leafy vegetables (GLV) Araikeerai (*Amaranthus tritis*) and Agati (*Sesbania grandiflora*) helps good for the lungs for healing cough, cold, for nerve-related problems, improving vital energy and good for eye problems, controls high blood pressure, reduce problems related to increased body heat, reduce gastric problems, strengthens the abdomen, to relieve severe stomach pain respectively in which the phytoconstituents, the derived products such as Total chlorophyll, carotenoids, Total carbohydrate, cellulose, Total phenol and protein etc., were involved¹.

The present study aims with the quantification of the biochemical parameters in Araikeerai (*Amaranthus tritis*) and Agati (*Sesbania grandiflora*) as a part of functional arena.

MATERIALS AND METHODS

Araikeerai and Agati seeds were collected from Super seeds nursery, coimbatore and sowed. After 35 days of its growth seeds, leaves, and stem were collected, air dried and powdered using a blender. The biochemical parameters such as Total carbohydrates, chlorophyll, carotenoids, cellulose, Total phenol and protein were carried out in dried powder of Araikeerai (*Amaranthus tritis*) and Agati (*Sesbania grandiflora*).

Biochemical analysis

The Chlorophyll content was determined by the method of Witham *et al.*, (1971)². The Total carbohydrate content was determined by the method of Hedge and Hofreiter (1962)³. The Total protein content was determined by the method of Lowry *et al.*, (1951)⁴. The Total phenol content was determined by the method of Malick and Singh, (1980)⁵. The carotenoid content of the leaves are determined by the method of Zakaria *et al.*, (1979)⁶.

RESULTS AND DISCUSSION

Table 1 depicts biochemical analysis of chlorophyll of *Amaranthus tritis* was about 1.12±0.04 (mg/g) and *Sesbania grandiflora* was 2.39±0.09 (mg/g) whereas its carotenoids content was 10 times higher ranging to 10.74±0.10 (mg/g) in *Sesbania grandiflora* than *Amaranthus tritis* which has 1.72±0.02 (mg/g). As evident from table I that the green leafy vegetable, Agati was found to be superior amount of carotenoids which has the similarity with the findings of Jacob *et al.*, in which H.sabdariffa was found to have maximum amount of carotene¹.

Table 1: Chlorophyll and carotenoids contents in *Amaranthus tritis* and *Sesbania grandiflora*

Samples	Chlorophyll (mg/g)	Carotenoids (mg/g)
<i>Amaranthus tritis</i>	1.12±0.04	1.72±0.02
<i>Sesbania grandiflora</i>	2.39±0.09	10.74±0.10

Table 2: Total Carbohydrate and protein content in *Amaranthus tritis* and *Sesbania grandiflora*

Samples	Total Carbohydrate (mg/g)	Total Protein (mg/g)
<i>Amaranthus tritis</i>	10±0.03	0.14±0.07
<i>Sesbania grandiflora</i>	14±0.03	0.08±0.002

(Values expressed as mean ±SD).

It is evident from the table II that total carbohydrate was high in Agati than in Araikeerai. On the contrary total protein was significantly more in Araikeerai than Agati. A study by Hassan and Umar (2008) also stated that the carbohydrate and protein content of *Momordica balsanina* was found to be higher than that of *Senna obtusifolia*⁷.

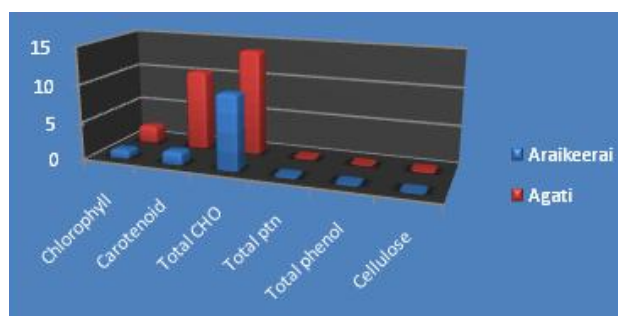


Table 3: Total phenol and cellulose content in *Amaranthus tritris* and *Sesbania grandiflora*

Samples	Total phenol (mg/g)	Cellulose (mg/g)
<i>Amaranthus tritris</i>	0.19±0.03	0.07±0.001
<i>Sesbania grandiflora</i>	0.14±0.02	0.256±0.01

(Values expressed as mean ±SD).

The above table III shows that total phenol in Araikeerai was slightly higher than in Agati. But cellulose was high in Agati. Adedapo *et al.*, (2008) also reported that the level of the phenolic compounds from the stems of *Adenia gummifera* and *Acokanpha oppositifolia* were found to be higher⁸.

**Figure 1**

The above Figure 1 is a pictorial representation of comparison of the experimental values of biochemical constituents like chlorophyll, carotenoids, Total carbohydrate, Total protein, Total phenol, Cellulose in Araikeerai and Agati.

CONCLUSION

Overall, from the findings of this study it could be concluded that both selected GLVs are immense source of

biochemical, which emphasize that diet rich in GLVs confer health promoting benefits. The above study thus calls for evaluation of antioxidants like glutathione peroxidase, glutathione reductase, lipid peroxidase, reduced glutathione and free radical scavenging activity in both the GLVs.

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