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Computational analyzing of 13 trace elemental concentrations in ten anti-skin disease traditional herbs from Telangana using ED-XRF-Technique

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ABSTRACT

Skin diseases present a major health concern worldwide. In recent years, herbal plants have been proved a good source of highly effective conventional agents for the treatment of several skin diseases. In this research study, the popular ED-XRF Technique was used for estimation of 13 trace elemental concentrations in 10 various Anti-skin diseases herbal plants, due to its multi-elemental, high sensitivity and low detection limits. Thirteen major and minor or trace elements namely P, K, Cl, Mn, Ca, Cu, Fe, Zn, Rb, Sr, Br and Se were identified and concentrations measured in ppm levels and further we have discussed a possible link between the curative properties of herbal plants and their elemental concentrations. In the present work, the concentration of S, Ca, Mn, Fe, and Zn was found at an enormous excess amount while Cu and Se found at low concentrations in selected medicinal plants when compared with the control sample (NIST Apple leaf). Notably, the present findings exhibited that, the curative potentials of these herbal plants used for curing various kinds of skin ailments since they are found to containing a rich amount of Mn, Ca, Zn, Se, Cu and Fe.

***Keywords*:** Medicinal herbs, Conventional practices, Trace elements, Skin-ailments, EDXRF-spectrometer, nEXT-software, *Aloe vera, Curcuma longa, Coccinia grandis, Moringa oleifera, Butea monosperma, Andrographis paniculata, Pongamia pinnata, Clerodendrum serratum, Alstonia scholaris, Annona muricata*

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1. INTRODUCTION

In recent years skin disease is a major health burden across the globe, affects all ages of people and gender [1, 2] and also serious effect on their life. Skin diseases include rashes, acne, boils, itching, ringworm, wounds, etopic dermatitis, scabies, psoriasis and few not with distinctly classified conditions are caused by various microorganisms like bacteria, virus and fungi [3]. Among these etopic dermatitis, pimples, wounds, skin cancers, and psoriasis are the 5 most common prevalent skin problems [4].

Medicinal plants are used in traditional medicine for thousands of years for treating and preventing several diseases. According to World Health Organization (WHO) about 80 % of the people depend enormously on conventional drugs for their primary health care, and development of drug [5]. More than half of the world population still depends exclusively on medicinal plants and plants offer the active constituents of most traditional medical products [6], which are responsible for physiological functions of plants and animals [7]. According to WHO various organs of the medicinal plants like roots, stem, leaves, bark, flowers, seeds, and fruits are used in preparation of the folk recipes for treating diseases. In the human body, the chemical constituents of medicinal plants interact directly or indirectly with the body chemistry. Once the active constituents are entered the human body fluids and tissues which are derive the required benefits to body by blood circulation [5] even at very low doses.

Trace elements are important micronutrients which play a significant role in the body for its normal functions especially through various enzymes, hormones and vitamins, [8, 9] and are also important for the membrane function including keratinisation and formation of melanin [10]. The melanin formation and keratinisation both are can be directly or indirectly influenced by macro and trace elemental content [11]. The important role of trace elements in the growth, health and ailments of human body was observed during the last few years [12]. Trace elements are required in minute quantities for metabolic activities of the plants and animal organ [13, 9]. At the same time enormous concentration, or deficiency of certain essential elements, like Cu, Fe, Zn, Mn, Se, are toxic to animals and human beings [14, 15] and leads to serious health problems including various skin diseases. Many trace elements have powerful anti-microbial activities, for instance, zinc antiseptic creams and silver bandages for the treatment of burns [16] and Magnesium drugs for the treatment of ulcers [17]. Based on literature study, essential trace elements namely Cu, Mn Zn, Se and Fe are present in lower levels or enormous excess amount in serum of blood can exert various skin diseases [18-20].

Good numbers of workers have studied medicinal plants, with plant consequent products used for curing several skin diseases [4, 6, 21]. Some Mizoram State workers have studied trace elemental concentration in the four popular herbal plants used to treat various skin ailments using PIXE-technique [22]. Gowrishankar *et al.* in 2010 have studied trace element content in some most important selected herbal plant species by PIXE-technique used to treat various diseases including jaundice, diabetes, and skin ailments [23]. Recently Jyothsna *et al.*, in 2020 have studied analysis of trace elemental content in seven popular medicinal herbs by EDXRF-technique from Telangana in India for curing asthma disease [24]. Telangana has a huge diversity and large variation in medicinal plant vegetation. The majorities' of people in Telangana live below the poverty line, using herbal plants and their consequent products in the prevention and management of several disorders namely jaundice, asthma, diabetes mellitus, and skin diseases and etc. *Aloe vera, Curcuma longa, Coccinia grandis, Moringa oleifera, Butea monosperma, Andrographis paniculata, Clerodendrum serratum, Pongamia pinnata,*

Pongamia pinnata, Alstonia scholaris, and Annona muricata are some of the most popular ethno medicinal herbs traditionally used by the Telangana people to prevent various skin ailments. Though, there is a shortage of data regarding quantitative analysis of trace elemental concentrations in above ten selected medicinal plants of Telangana. In the present work we have analyzed 13 trace elemental concentrations in above 10 most popular anti-skin disease medicinal herbs from Telangana by EDXRF technique. The main aim of the present investigation is to screen the trace elemental content in the ten different selected medicinal herbs of Telangana commonly used in the treatment and prevention of different skin ailments.

2. MATERIALS AND METHODS

2. 1. Sample Collection

The Present work is focused on trace elemental analysis of ten different selected medicinal herb species were taken from various places in Telangana state, India, which were used in the preparation of modern herbal drugs used for prevent of different skin diseases. The list of medicinal plants is shown in table 1 and images of medicinal plants were shown in Figure 1.

Table 1. Anti-Skin disease medicinal herbs of Telangana state, India.

Botanical name	Sample code Local name	Local name	Family	Parts used	Reference
Aloe vera (L.) Burm. f.	ALO	Kalabandha	Asphodelaceae	Leaves	[25]
Curcuma longa L.	TAR	Turmeric	Zingiberaceae	Seeds	[25]
Coccinia grandis (L.) Vaigt	AD	Adavidonda	Cucurbitaceae	Fruits	[26]
Moringa oleifera Lam.	MOR	Munaga	Moringaceae	Leaves	[27]
Butea monosperma (Lam.) Taub.	BMA	Modugu	Fabaceae	Aerial parts	[28]
Andrographis paniculata (Burm.f.) Nees	AGP	Neela vemu	Acanthaceae	Whole Plant	[28]
Pongamia pinnata (L.) Pierre	PNP	Kanuga	Fabeceae	Bark	[28]
Clerodendrum serratum L.	CSM	Guntubharangi	Lamiaceae	Leaves	[29]

Alstonia scholaris (L.) R. Br.	ALS	Adakula	Apocynaceae	Leaves	[30]
Annona muricata L.	AMA	Lakshmanaphalam	Annonaceae	Leaves	[31]

Aloe vera leaves

Curcuma longa stem

Coccinia grandis fruits

Moringa oleifera leaves

Butea monosperma aerial parts

A. paniculata w.p

C. serratum leaves

Pongamia pinnata bark

Alstonia scholaris leaves *Annona muricata* leaves

Fig. 1. Photographs of Anti-Skin diseases medicinal plants.

2. 2. Sample Preparation

The selected various parts of medicinal herb species were gathered from different places from Telangana state, India, The plant species were cleaned with double distilled water in order to eradicate surface contamination, debris and dry. Plant samples were kept in an oven at 60 °C for 24 hours. Then plant samples were manually grounded by agate mortar and pestle to form a homogenized powder.

Pure quantity of 150 mille grams of each powdered sample was weighted by digital weighing machine. A 150 ton hydraulic press machine with pressure of 110 to 200 kg/cm^3 was used to compress 150 mg powdered samples in to small pellets with a type of 13 mm dia and about 2 mm thickness. Triplicate of each sample was prepared. While pelletizing, both sides of the compression die were cleaned every time with acetone to avoid contamination. These pellets were used as targets for Energy Dispersive X-Ray Fluorescence (EDXRF) experiment. Standard Reference Material (SRM) of NIST 1515 (Apple leaf) was used as a reference multi-elemental standard and procured from National Institute of Standards and Technology or National Bureau of Standards, US, Commerce Department, Gaithersburg, MD.

2. 3. EDXRF-Analysis

The present experimental research work carried out at TEL (Trace Elemental Laboratory) UGC-DAE CSR Kolkata Centre, Kolkata, India. The setup consists of Xenemetric (previously Jordan valley) EX-3600, Energy Dispersive X-Ray Fluorescence (EDXRF) spectrometer, which consists of oil cooled Rh anode X-Ray tube (maximum voltage 50V, current 1mA). The measurements were carried out in vacuum chamber using different filters (between the source and sample) for optimum detection of elements. Si (Li) detector with a resolution of 143 eV at 5.9 k eV and 10 samples turret enables mounting and analyzing 10 samples at a time [24, 32].

3. RESULTS AND DISCUSSIONS

The elemental concentrations were analyzed in selected ten different anti-skin diseases medicinal plant species by using EDXRF technique. A total 13 elements namely Phosphorus, Sulphur, Chlorine, Potassium, Calcium, Manganese, Iron, Copper, Selenium, Zinc, Bromine, Rubidium and Strontium were identified and their elemental concentrations were measured in ppm level. Average elemental concentrations with their corresponding SD (Standard Deviation) for each element were shown in table 2. Table 2 shown that large varies in their elemental compositions of the selected plant species. Figure 2 shows the EDXRF spectrums of selected ten anti-skin diseases medicinal plant species. Figure 3 shows the bar graphs of essential elemental concentrations of medicinal plants with standard values of NIST 1515 apple leaf. The elements namely K, Ca, P, S, Cl, Fe and Sr were found at higher level whereas remaining elements such as Se, Cu, Rb and Sr were observed at lower level in present selected ten different medicinal plant species. In these elements i.e., S, Fe, Mn, Zn, Cu, Se and Rb are very essential for healing different skin ailments and play a significant role in the formation of secondary metabolites and also responsible for the defense from pathogen and recovery quickly from the severe skin disorders [22].

Analysis of the present data reveals that, the elements Ca, Mn, Fe, and Zn were found at higher level and remaining elements such as Se, and Cu were found at appreciable level in all the selected plant species when compared with Standard Certified Reference (SCR) material of NIST 1515 apple leaf. Present investigation is focused on only certain elements such as S, Fe, Mn, Zn, Cu, Se and Rb are play a vital role in the prevention of various skin diseases.

3. 1. Here

3. 1. 1. Sulphur

The average concentration of Sulphur was varied from 5190.54±47.4 ppm to 423±15 ppm. S concentration was found high in *Coccinia grandis* fruits 5190.54±47.4 ppm whereas low concentration of S was found in *Clerodendrum serratum* leaves 423±15 ppm when compared with SCR values of NIST 1515 apple leaf 1800 ppm. The DRI of S is 800-900 mg/day. Sulphur is an essential element for all human beings and extensively used in biochemical processes. S has a long history of use for variety of dermatological disorders [33]. S has antifungal, antibacterial and keratolytic activity. S used alone or in combination with agents such as Sodium sulfacetamide or salicylic acid, has demonstated efficacy in the treatment of many dermalogical conditions [34]. S aids in healing of wounds via keratin and folklore usage as a remedy of skin rashes [35]. Topical applications of Sulphur as ointments and creams might provide benefits for various skin conditions such as acne, eczema, and psoriasis. Deficiency of S may leads to a number of health problems and without sufficient S in humans may experience joint pain.

3. 1. 2. Iron

In the present investigation, the average concentration of Iron was varied from 1623.12±54 pppm to 54.77±6.11 ppm. The concentration of Fe was found maximum in all selected medicinal plants except *Aloe vera* leaves 54.77±6.11 ppm. The highest concentration of Fe was found in *Clerodendrum serratum* leaves 1623.12±54 pppm whereas the lowest concentration of Fe was found in *Aloe vera* 54.77±6.11 ppm when compared with SCR vales

of NIST 1515 apple leaf 83 ppm. RDA of Iron is 8-11 mg/day. Iron is the most abundant trace element in our body and it facilitates oxidation of carbohydrates, proteins and fats to control body weight [36]. Fe overload occurs in higher risk of bacterial infections, such as cellulites and abscesses. Dermatopathic anemia has attracted the attention of clinicians because Fe deficiency was found to be a metabolic consequence of skin diseases [20].

3. 1. 3. Manganese

In the present investigation, the average concentration of Manganese was varied from 146.5±54.1 ppm to 3.36±0.57 ppm. High amount of Mn was found in *Clerodendrum serratum* leaves 146.5±54.1 ppm whereas low amount of Mn was found in *Aloe vera* leaves 3.36±0.57 ppm when compared with SCR values of NIST 1515 apple leaf 54 ppm. RDA of Mn is 2.3 mg/day and 1.2 mg/day for males and females. Manganese is an essential element for human health, acting as a cofactor in the active centers of various enzymes and is required for normal development, maintenance of nerve and immune cell functions [37]. Deficiency of Mn can cause dermatitis disorders [38]. Over exposure of Mn can be toxic to many organ systems and across different life stages such as a psychosis and Parkinson's disease [39].

3. 1. 4. Zinc

In the the present investigation, the average concentration of Zinc was varied from 244.06±11.15 ppm to 8.69±1.36 ppm. The highest concentration of Zn was found in *Aloe vera* leaves 244.06±11.15 ppm whereas the lowest concentration of Zn was found in *Alstonia scholaris* leaves 8.69±1.36 ppm when compared with SCR values of NIST 1515 apple leaf 12.50 ppm. RDA of Zinc is 8 mg/day for females and 11 mg/day for males. Zinc is an essential for healthy skin and play crucial role in vital processes. Zn is present in a number of Zn dependent metallo-enzymes in the skin. It is also present in both epidermis and dermis, though at levels of fivefold higher in the epidermis [40]. Zn deficiency is common in patients with chronic diseases especially in those with skin and growth retardation [18] and skin rash like dermatitis, eczema, alopecia, diarrhea, night blindness, hypogonadism, ageusia and acrodermatitis enteropathica. Too much toxicity of Zn leads to Copper deficiency, swelling, gastritis fever, nausea and vomiting [40].

3. 1. 5. Copper

In the present investigation, the average concentration of Copper was varied from 60.6±2.15 ppm to 3.2±0.75 ppm. The high concentration of Cu was found in *Alstonia scholaris* leaves 60.6±2.15 ppm whereas low concentration of Cu was found in *Aloe vera* leaves 3.2±0.75 ppm and considerable amount of cu wass found in *Moringa oleifera* leaves 5.62±0.2 ppm when compared with SCR values of NIST 1515 apple leaf 5.64 ppm. RDA of Copper is 900 mg/day. Copper is responsible for the metabolic of amino acids, and the pigment of skin freckles [41]. At present Cu is not considered a human carcinogen, while Cu is considered an essential element for the human body, exposure to large doses of Cu and its compounds through inhalation, ingestion and dermal contact can cause eczema [19]. Cu deficiency is rare except in malnutrition, prolonged parental nutrition, malabsorption, and mostly associated with depigmentation of hair and skin [42].

3. 1. 6. Selenium

In the present investigation, the average concentration of Selenium was varied from 0.79±0.11 ppm to 0.12±0 ppm. The concentration of Se was found maximum in all present selected medicinal plants. Selenium concentration was found very high in Aloe vera leaves 0.79±0.11 ppm when compared with SCR values of NIST 1515 apple leaf 0.05 ppm. RDA of Selenium is 55 mcg/day. Selenium is an important component for making many body processes work to properly. She is present in the cells of the skin as a component of various Seleno proteins, including phospholipid hydroperoxide glutathionine peroxidises (PHGPX) and thioredoxin reductase (TDR) [43]. Se deficiency is associated with an increased risk of cancers including skin cancer [44]. High dose of Se can be toxic that includes irritability, skin rash and weight loss [45]. Se imbalance, both deficiency and excess may causes skin abnormalities.

3. 1. 7. Rubidium

In the present investigation, the average concentration of Rubidium was varied from 18.93±1.4 ppm to 4.41±1.37 ppm. The highest concentration of Rb was found in *Moringa oleifera* leaves18.93±1.4 ppm whereas the lowest concentration of Rb was found in *Coccinia grandis* fruits 4.41±1.37 ppm when compared with SCR values of NIST 1515 apple leaf 10.20 ppm.

Table 2. Average elemental concentration of selected Anti-Skin diseases medicinal herbs ± SD values and compared with SRM values of NIST 1515 Apple leaf.

S. No	Sample Codes	Name of plants	Phosphorus	Sulphur	Chlorine	Potassium	Calcium	Manganese	Iron
1	ALO	*Aloe vera* (Leaves)	1423.08 ±61	452.35 ±26	14452.01 ±948	16537.94 ±417	24572.5 ±916	3.36 ±0.57	54.77 ±6.11
2	TAR	*Curcuma longa* (Stem)	1133.26 ±383.2	857.35 ±40.78	3949.12 ±291.73	14281.68 ±350	2353.37 ±12.43	56.93 ±2.69	267.80 ±11.64
3	AD	*Coccinia grandis* (Fruits)	2504.21 ±116	5190.54 ±47.4	10778.11 ±349	20968.8 ±698	20345.2 ±413	10.26 ±0.79	94.98 ±10.43
4	MOR	*Moringa oleifera* (Leaves)	1289.35 ±256	5177.28 ±1032	579±0	12621.64 ±136	8875.83 ±236	25.61 ±1.3	111.89 ±3.2

5	BMA	*Butea monosperma* (Aerial parts)	1109.20 ±17.5	1989.5 ±192	579 ±0	13453 ±725	14795±5 60	79.1 ±3.29	249.2 ±7.1
6	AGP	*Andrographis paniculata* (Whole plant)	768.31 ±378	1652.42 ±366	6317.72 ±2015	18940.69 ±2596	20413.66 ±2905	22.06 ±0.08	250.39 ±6
7	GHI	*Clerodendrum serratum* (Leaves)	850.69 ±215	423 ±15	579 ±0	12245.31 ±198	9876.95 ±158	146.5 ±54.1	1623.12 ±54
8	PNP	*Pongamia pinnata* (Bark)	1923.5 ±265	1698.9 ±354	6894 ±147	21587 ±354	25036.84 ±986	20.5±1.1 9	87.34±0. 87
9	ALS	*Alstonia scholaris* (Leaves)	500.23± 18.24	1282.2± 43.9	2537.34 ±63	8722.5± 63	26031.12 ±476	27.28 ±1.39	221.46 ±9.97
10	AMA	*Annona muricata* (Leaves)	1409.12 ±39	1691.51 ±35	2592 ±39	12589 ±751	24019 ±129	139.5 ±15.2	126.5 ±10
11	**NIST 1515**	***Apple leaf***	**1590**	**1800**	**579**	**16100**	**15260**	**54**	**83**

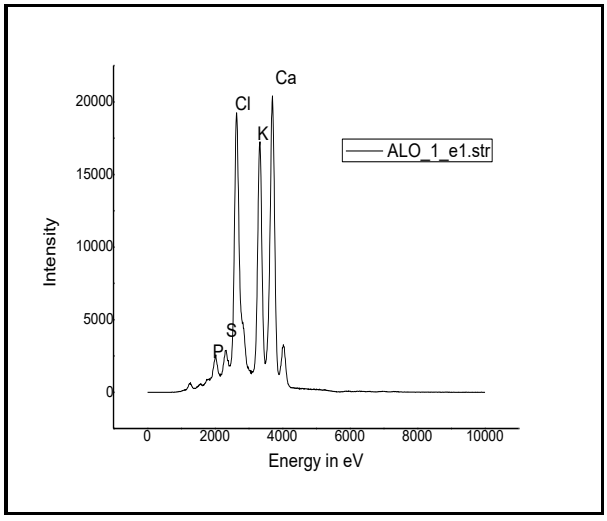
Table 2(continue). Average elemental concentration of selected Anti-Skin diseases medicinal herbs ± SD values and compared with SRM values of NIST 1515 Apple leaf.

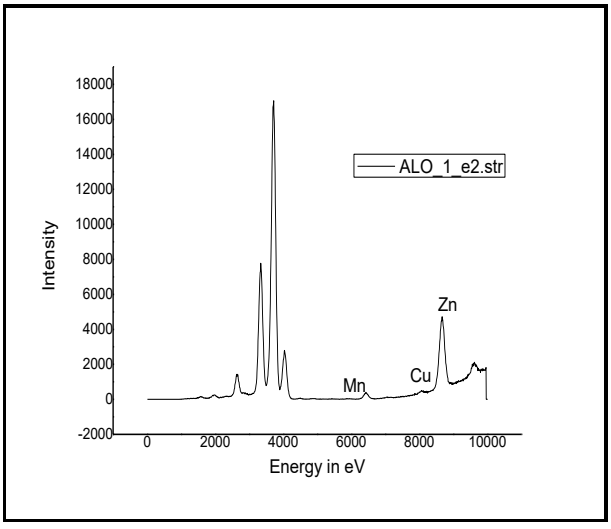
S. No	Sample Codes	Name of plants	Copper	Zinc	Selenium	Bromine	Rubidium	Strontium
1	ALO	*Aloe vera* (Leaves)	3.2 ±0.75	244.06 ±11.15	0.32 ±0.34	5.32 ±0.15	13.87 ±1.9	300.8 ±15.21
2	TAR	*Curcuma longa* (Stem)	6.82 ±1.02	11.21 ±1.68	0.42 ±0.53	4.96 ±0.27	8.51 ±2.29	24.33 ±5.19

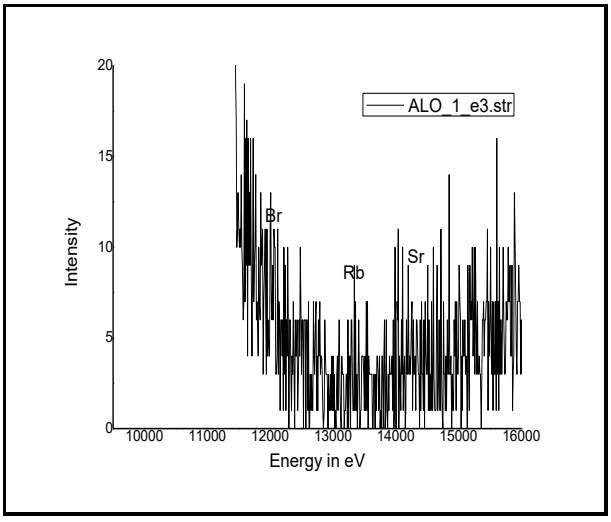
3	AD	*Coccinia grandis* (Fruits)	10.70 ±0.7	34.85 ±1.64	0.133 ±0.01	10.03 ±0.31	4.41 ±1.37	164.46 ±4.8
4	MOR	*Moringa oleifera* (Leaves)	5.62 ±0.2	10.64 ±0.02	0.13 ±0.1	1.62 ±0.32	18.93 ±1.4	32 ±0.11
5	BMA	*Butea monosperma* (Aerial parts)	7.29 ±1.3	18.9 ±0.09	0.51 ±0.2	27.9 ±1.28	12.9 ±3.95	86.2 ±9.2
6	AGP	*Andrographis paniculata* (Whole plant)	4.49 ±0.31	37.74 ±2.35	0.41 ±0.25	7.14 ±0.60	14.81 ±0.70	93.20 ±5.2
7	GHI	*Clerodendrum serratum* (Leaves)	10.9 ±0.65	35.78 ±3.5	0.79 ±0.11	3.21 ±1.03	9.47 ±1.42	98.26 ±4.6
8	PNP	*Pongamia pinnata* (Bark)	16.7 ±1.65	42.8 ±2.6	0.18 ±0.15	36.4 ±0.96	8.5 ±1.92	35.9 ±3.4
9	ALS	*Alstonia scholaris* (Leaves)	60.6 ±2.15	8.69 ±1.36	0.213 ±0.16	49.6 ±2.24	8.95 ±0.94	132.67 ±2.02
10	AMA	*Annona muricata* (Leaves)	11.68 ±3.5	18.75 ±8.2	0.12 ±0	39.5 ±4.9	17.2 ±0.91	129.51 ±1.28
11	**NIST 1515**	***Apple leaf***	**5.64**	**12.50**	**0.05**	**1.80**	**10.20**	**25**

ALO - *Aloe vera*, TAR - *Curcuma longa*, AD - *Coccinia grandis*, MOR - *Moringa oleifera*, BMA - *Butea monosperma*, AGP - *Andrographis paniculata*, GHI - *Clerodendrum serratum*, PNP - *Pongamia pinnata*, ALS - *Alstonia scholaris and* AMA- *Annona muricata*

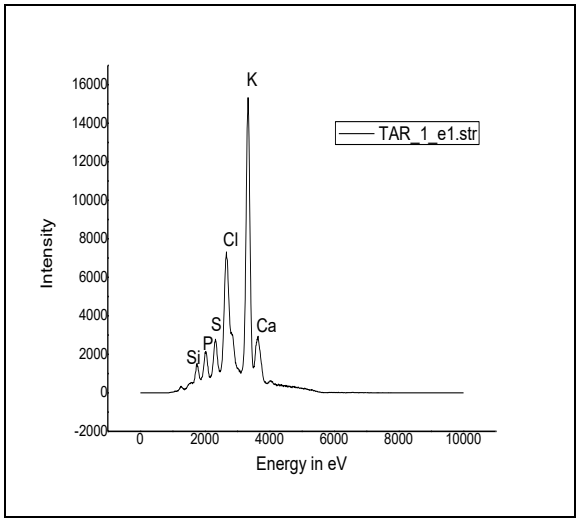
Rb is considered to be the sixteenth most abundant, non-essential element in the earth crust. It is like Potassium and there is no evidence, where it is seen as a danger. Rb reacts with skin to form rubidium hydroxide which causes eye and skin burns [46].

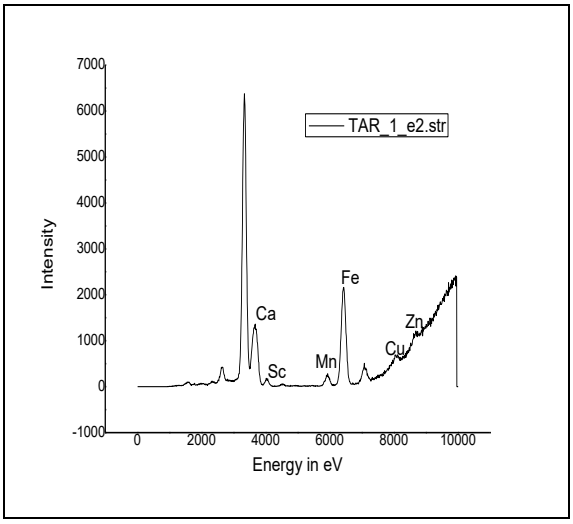


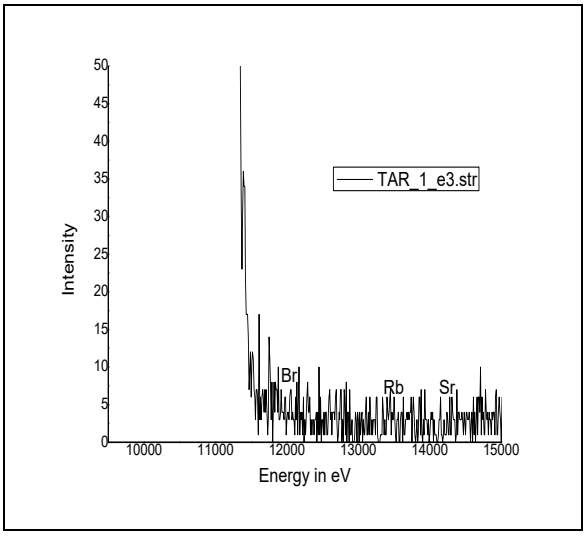




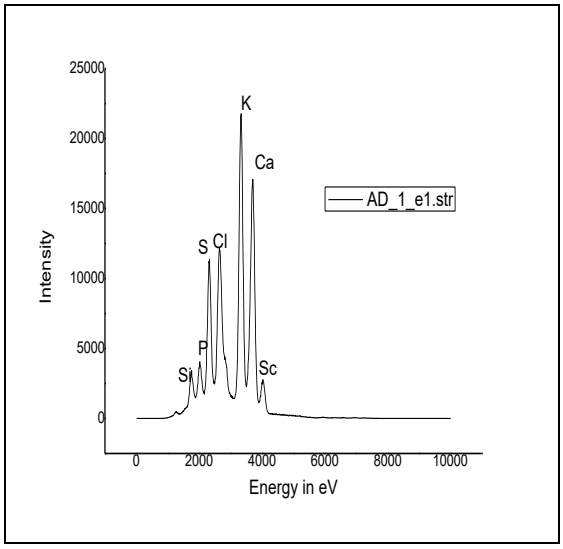
EDXRF Spectrum of *A. vera* (ALO) sample [ALO_1_e1-str, ALO_1_e2-str, ALO_1_e3-str]

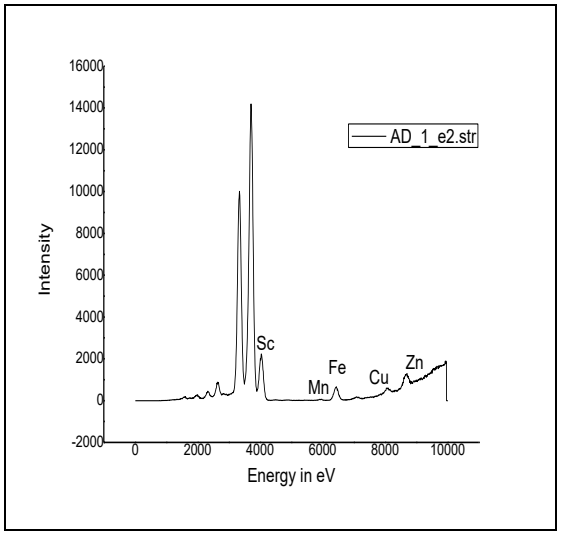


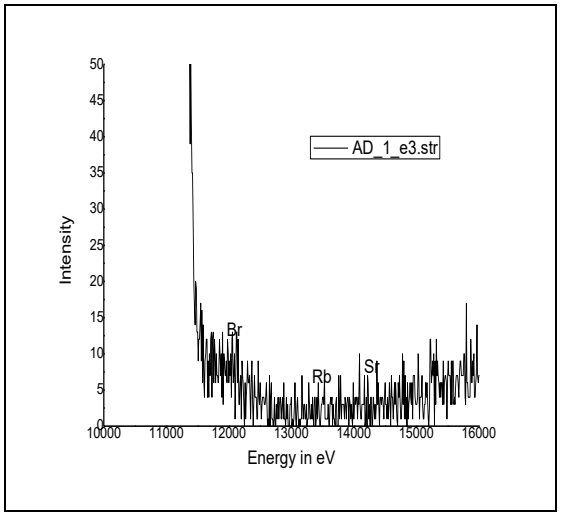




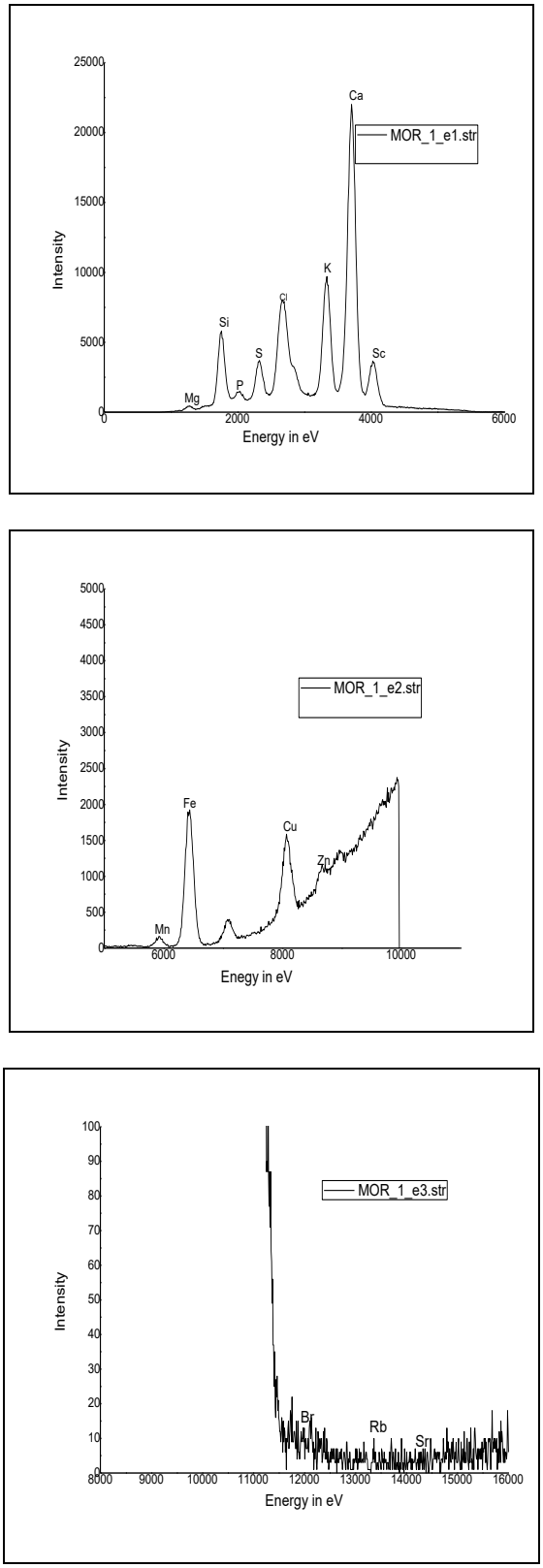
EDXRF Spectrum of *C. longa* (TAR) sample [TAR_1_e1-str, TAR_1_e2-str, TAR_1_e3-str]



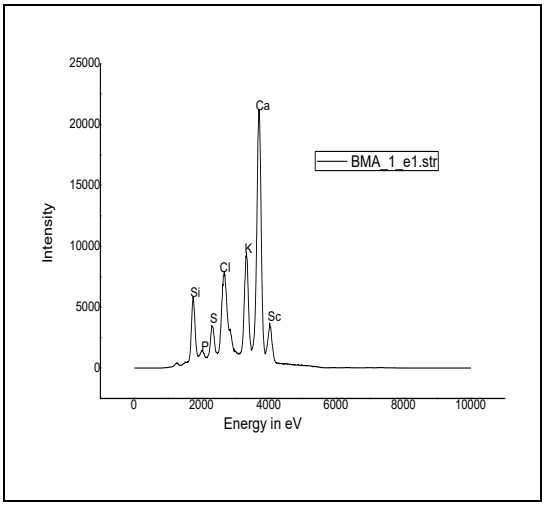


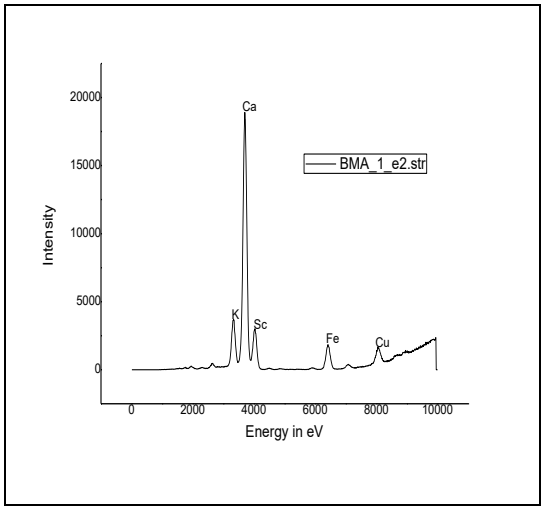


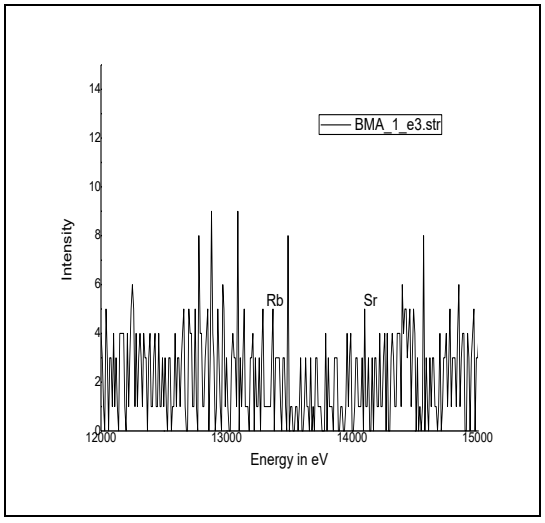
EDXRF Spectrum of *C. grandis* (AD) sample [AD_1_e1-str, AD_1_e2-str, AD_1_e3-str]



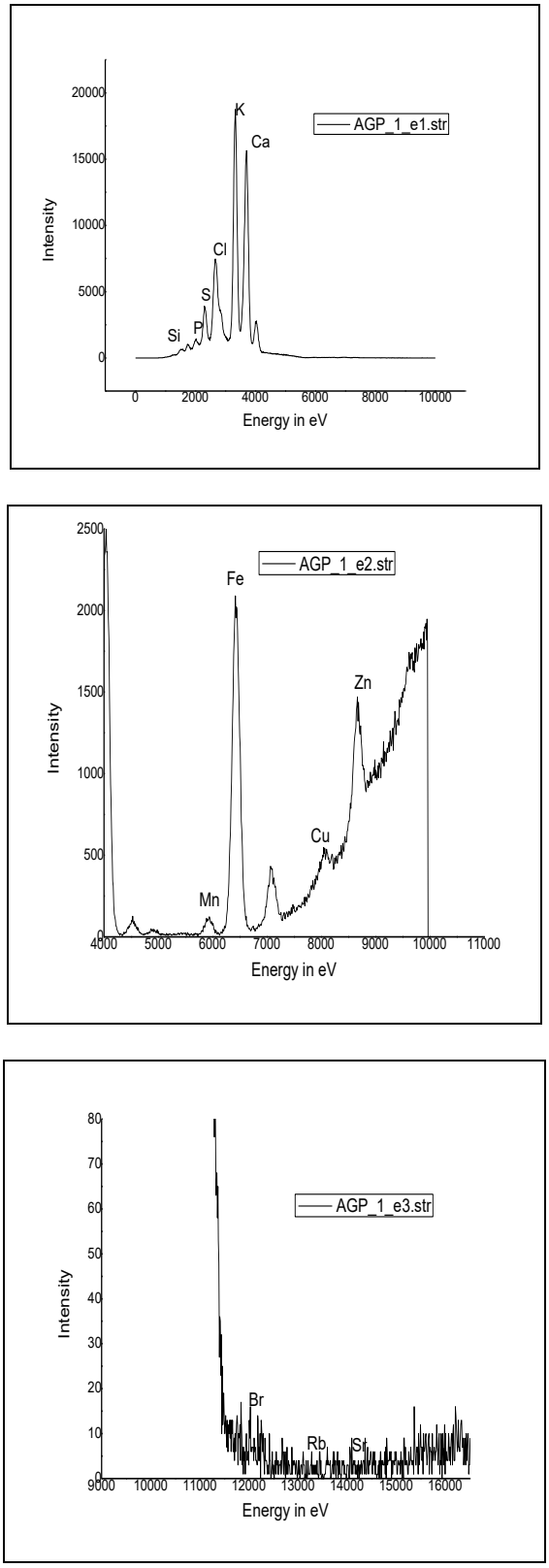
EDXRF Spectrum of *M. oleifera* (MOR) sample [MOR_1_e1-str, MOR_1_e2-str, MOR_1_e3-str]



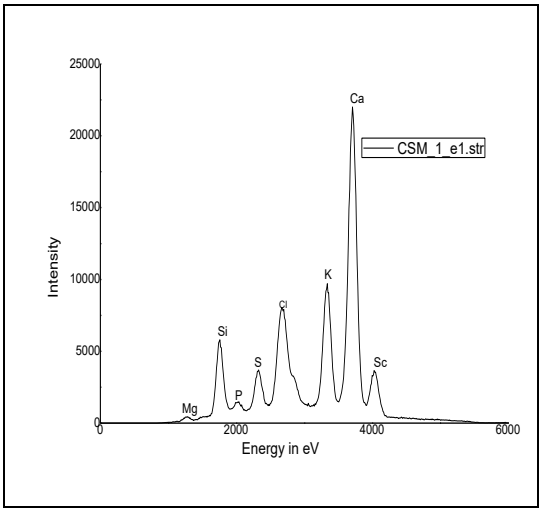


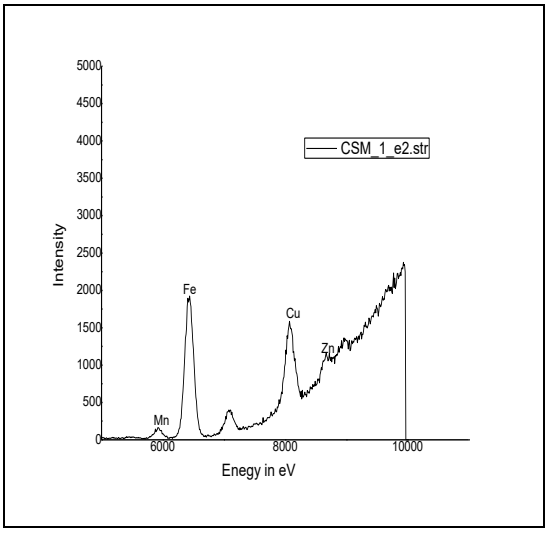


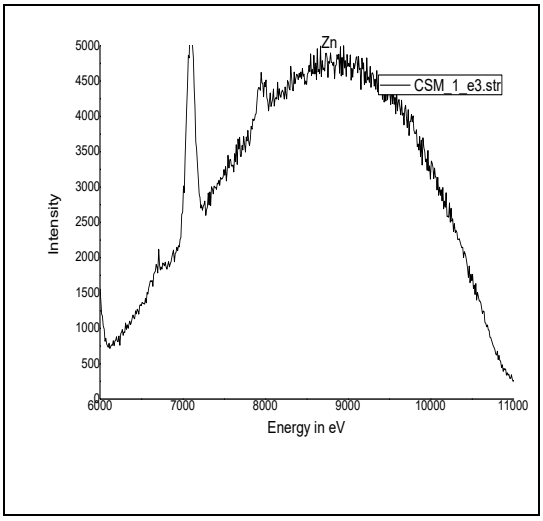
EDXRF Spectrum of *B. monosperma* (BMA) sample [BMA_1_e1-str, BMA_1_e2-str, BMA_1_e3-str]



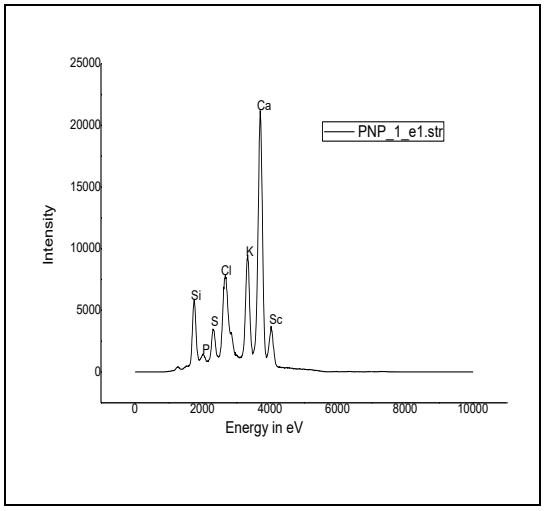
EDXRF Spectrum of *A. paniculata* (AGP) sample [AGP_1_e1-str, AGP_1_e2-str, AGP_1_e3-str]

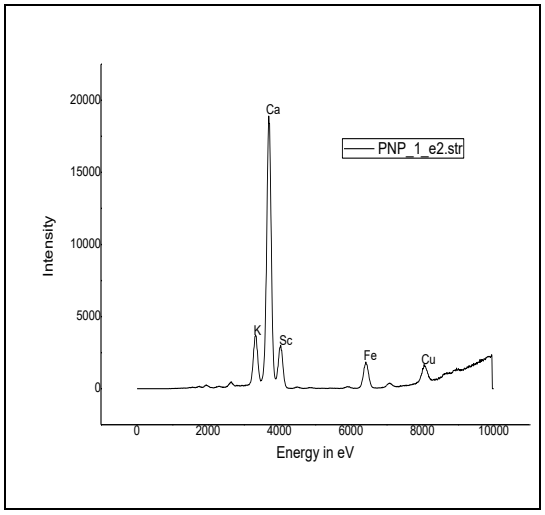


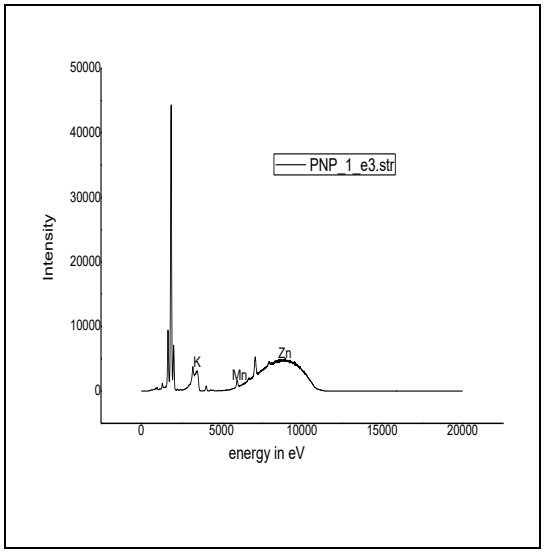




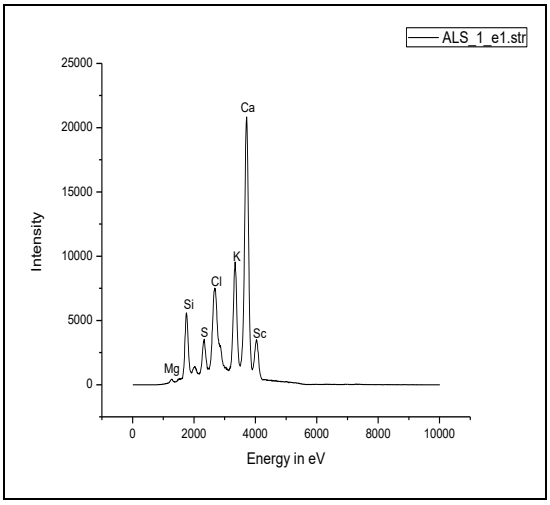
EDXRF Spectrum of *C. serratum* (CSM) sample [CSM_1_el-str, CSM_1_e2-str, CSM_1_e3-str]

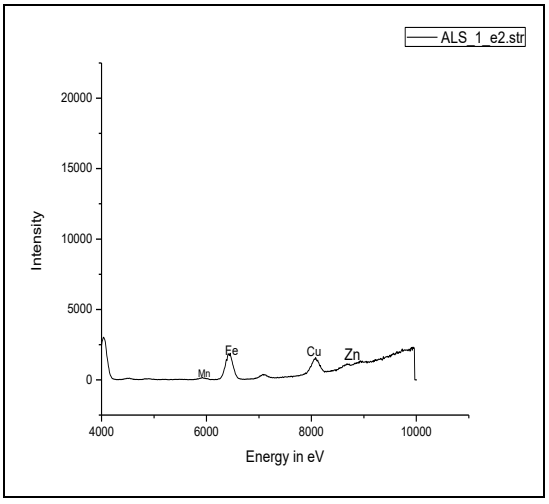


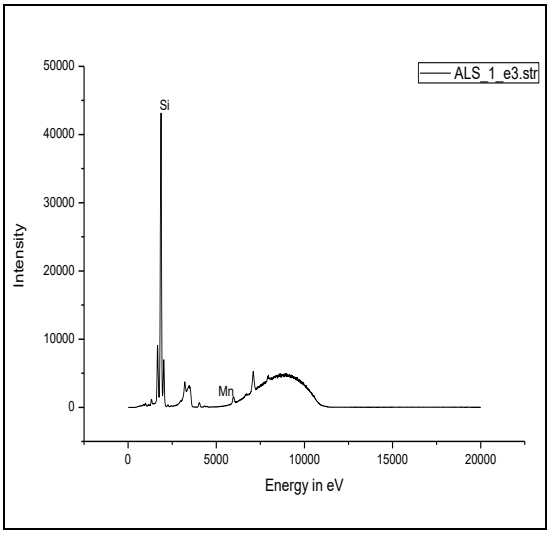




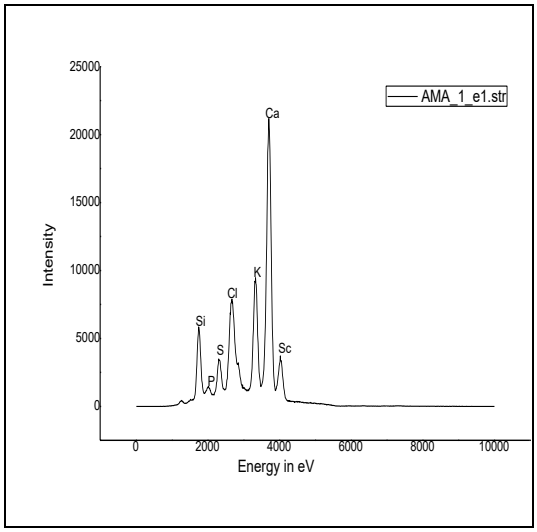
EDXRF Spectrum of *P. pinnata*) (PNP) sample [PNP_1_e1-str, PNP_1_e2-str, PNP_1_e3-str]





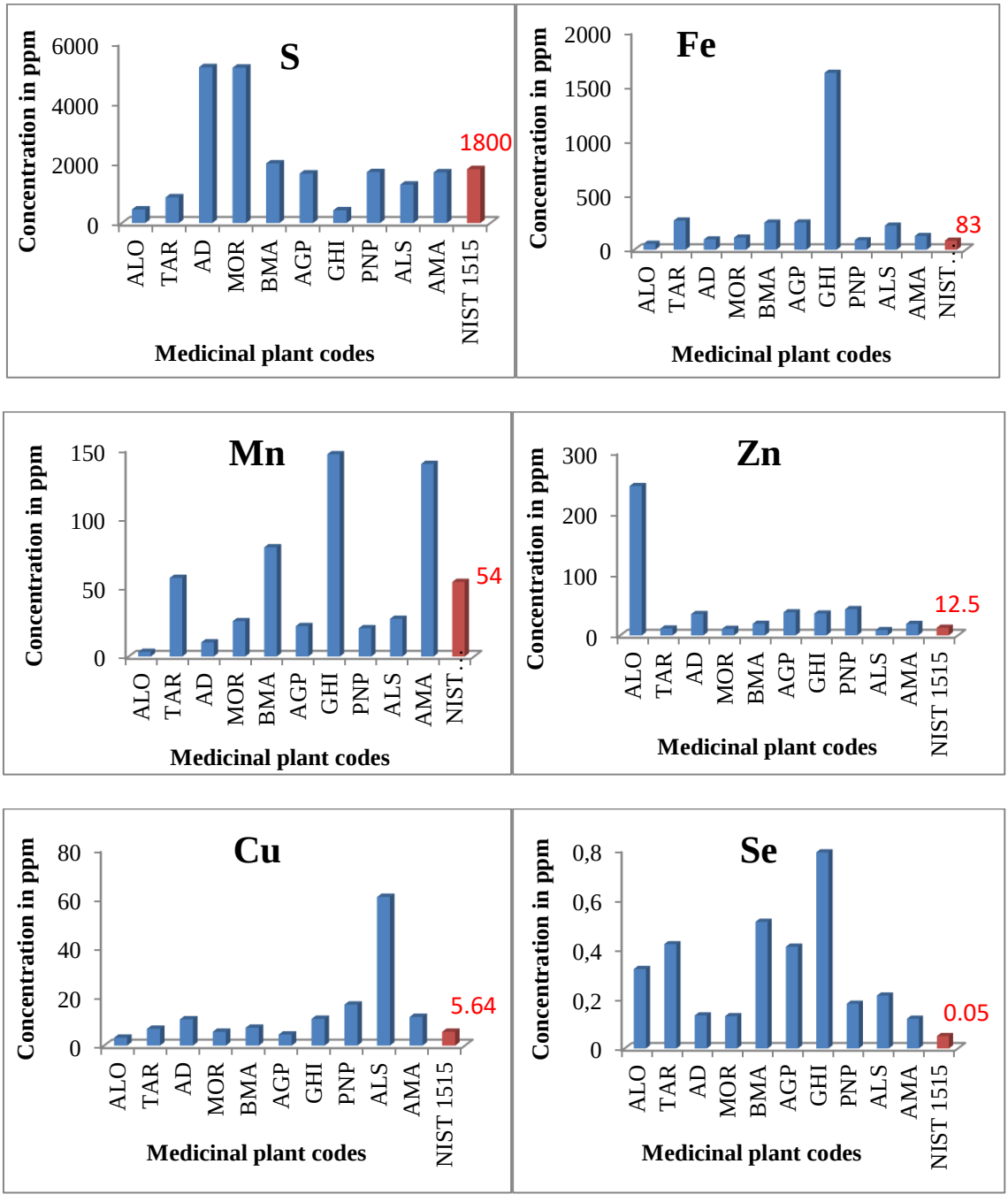


EDXRF Spectrum of *A. scholaris* (ALS) sample [ALS_1_e1-str, ALS_1_e2-str, ALS_1_e3-str]



EDXRF Spectrum of *A. muricata* (AMA) sample [ALS_1_e1-str, ALS_1_e2-str, ALS_1_e3-str]

Fig. 2. EDXRF- spectrums of Anti-Skin diseases medicinal plants of ALO (*Aloe vera*), TAR (*Curcuma longa*), AD (*Coccinia grandis*), MOR (*Moringa oleifera*), BMA (*Butea monosperma*), AGP (*Andrographis paniculata*), CSM (*Clerodendrum serratum*), PNP (*Pongamia pinnata*), ALS (*Alstonia scholaris*), and AMA (*Annona muricata*).



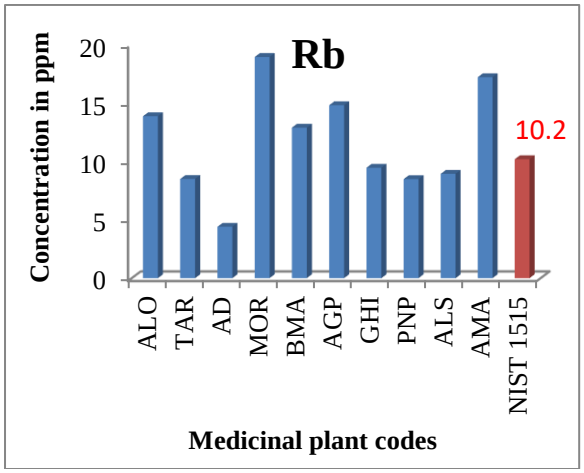


Fig. 3. Bar graphs of important elemental concentrations of S, Fe, Mn, Zn, Cu, Se, and Rb in selected anti-skin diseases medicinal plant samples with standard values of NIST 1515 (Apple leaves).

4. CONCLUSION

In this present study EDXRF technique was used to determine and quantify thirteen trace elemental concentrations in ten selected medicinal plant species. Present investigation sheds spotlight on the trace elemental composition of anti-skin diseases medicinal plants from Telangana. From the results, the data showed that these medicinal plants of Telangana can be considered as potential sources for preventing various skin ailments since they are found to have a substantial amount of the trace elements namely Ca, Fe, Br, Cu, Zn and Se. Moreover, the above data of selected Telangana anti-skin diseases medicinal plant samples support their integration in the synthesis of herbal drugs and modern medicines and may be used of importance for the development of new standard herbal supplements prepared from these selected plants against skin diseases. Furthermore, detailed research screening of elemental compositions of various parts of these important anti-skin diseases medicinal plants should be required.

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