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Phytochemical Properties of Unknown Herbal Pellets for Steroidal Moieties



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ABSTRACT

We report a case of side effects of steroids found in herbal pellets in 70 year old patients who was suffering from allergic reactions. Local healthcare providers often question the possible steroidal activity of Herbal Pellets and implicate them as a cause for adrenal insufficiency or Cushing's syndrome, hypersensitivity (allergic reaction) in patients. We conducted a test for steroids for phytochemical analysis of unknown Herbal Pellets for Steroidal Moieties.



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INTRODUCTION:

Since their identification in 1935, steroids have served a wide range of uses. Initially, these isolates from adrenal glands were thought to be useful only in patients suffering from Addison disease, hypersensitivity reaction (allergic reaction). Today, many of the clinical roles of steroids are related to their potent anti-inflammatory and immune-modulating properties. Clinically relevant side effects of steroids are common and problematic, ranging from a minor case of acne to Cushing syndrome that can result in diabetes mellitus and potentially life-threatening heart disease if untreated. Side effects can occur at a wide range of doses and vary depending on the route of administration¹.

Endogenously produced steroid hormones can be classified into two main groups: corticosteroids (glucocorticosteroids and mineralocorticoids) and sex hormones (androgenic and estrogenic compounds). These naturally occurring steroids are mainly synthesized in the adrenal gland; mineral corticoids, glucocorticoids and sex hormones are synthesized in zona glomerulosa cells, zona fasciculate cells and zona reticular is cells, respectively. Any interference with the steroidogenic enzyme activity or steroid receptors could affect the multistep steroid synthesis pathway, resulting in steroidal or anti steroidal activity².

❖ *Steroids -*

Steroid tablets, also called corticosteroid tablets, are a type of anti-inflammatory medicine used to treat a range of conditions.

They can be used to treat problems such as allergies, asthma, eczema, inflammatory bowel disease, Addison's disease and arthritis.

Steroid tablets are only available on prescription. Dissolvable, liquid and syrup versions are also available.

❖ *Common examples include:*

- 1.Prednisolone
- 2.Betamethasone
- 3.Dexamethasone
- 4.Hydrocortisone

❖ *If you miss a dose or take too much*

If you forget a dose, take it as soon as you remember. If it's almost time for your next dose, skip the one you missed. Do not take a double dose to make up for a forgotten dose. Accidentally taking too many steroid tablets is unlikely to be harmful if it's a one-off.

Speak to your doctor or a pharmacist if you're worried. Taking too many steroid tablets over a long period can make you more likely to get side effects.

❖ *Coming off treatment*

Do not stop taking your medicine without talking to your Doctor. If you've been taking steroid tablets for more than a few days, you usually need to reduce your dose gradually. Stopping suddenly can cause your adrenal gland, which makes important hormones for the body, to stop working. This is known as adrenal insufficiency.

❖ *Symptoms of adrenal insufficiency include:*

- Feeling extremely tired
- Feeling and being sick
- Dizziness
- Loss of appetite
- Weight loss³.



❖ *Side effects of steroid tablets:*

Taking steroid tablets for less than 3 weeks is unlikely to cause any significant side effects. But you may get some side effects if you need to take them for longer or at a high dose.

❖ *Side effects of steroid tablets can include:*

- indigestion or heartburn
- increased appetite, which could lead to weight gain
- difficulty sleeping
- changes in mood and behavior, such as feeling irritable or anxious

- an increased risk of infections – especially chickenpox, shingles and measles
- high blood sugar or diabetes
- weakening of the bones (osteoporosis)
- high blood pressure
- Cushing's syndrome – which can cause symptoms such as thin skin that bruises easily, a build-up of fat on the neck and shoulders and a red, puffy, rounded face.
- Eye conditions, such as glaucoma and cataracts³.

STEROID ABUSE SIDE EFFECTS

Mechanism of steroids:

The anti-inflammatory and immunosuppressive effects of glucocorticoids are dose-dependent, with immunosuppressive effects seen mostly at higher doses. The pharmacological anti-inflammatory and immunosuppressive effects of glucocorticoids are extensive and can occur via genomic or non-genomic mechanisms. Most effects of glucocorticoids are via the genomic mechanisms, which takes time, while immediate effects via the non-genomic mechanisms can occur with high doses of glucocorticoids (such as pulse therapy). Clinically, it is not possible to separate these effects⁴.

❖ Case Report:

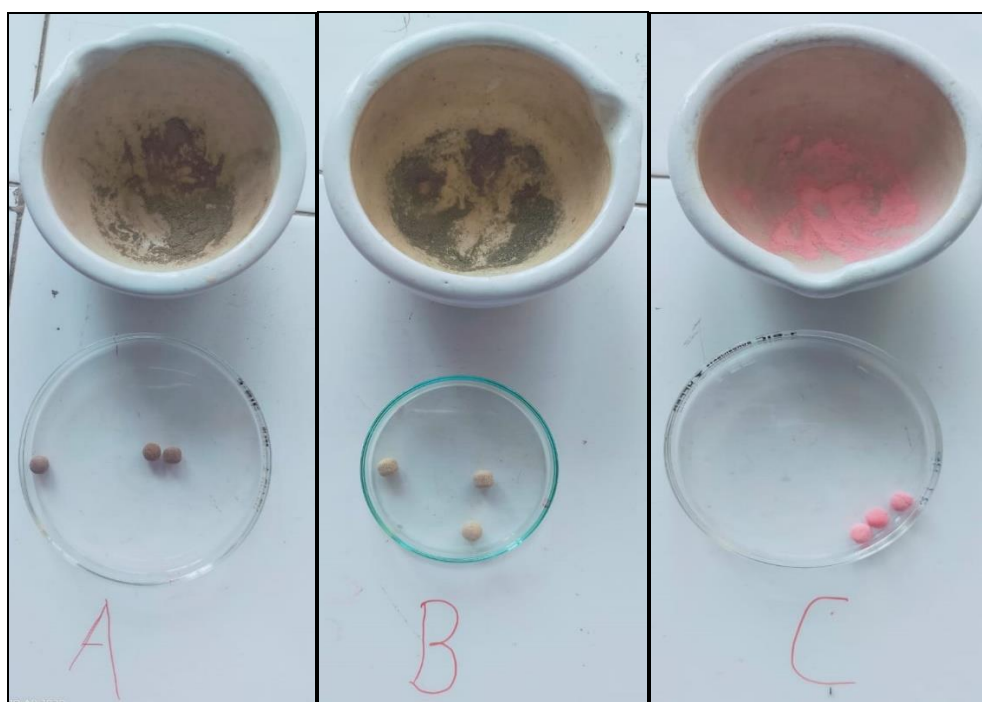
A xyz patient of 70 year old who was taking herbal medicines also he was suffering from hypertension. After that he was observed indigestion or heartburn, increased appetite, which could lead to weight gain, difficulty sleeping, changes in mood and behavior, such as feeling irritable or anxious.

Because of these all side effects we investigate and performed phytochemical screening of this herbal pellets. And then we found that steroidal substances in given herbal medicines. After investigation of results, these results correlates with clinical adverse effects.

Unknown sample of Herbal Pellets



Powder form of Herbal Pellets



❖ Tests For Steroid :

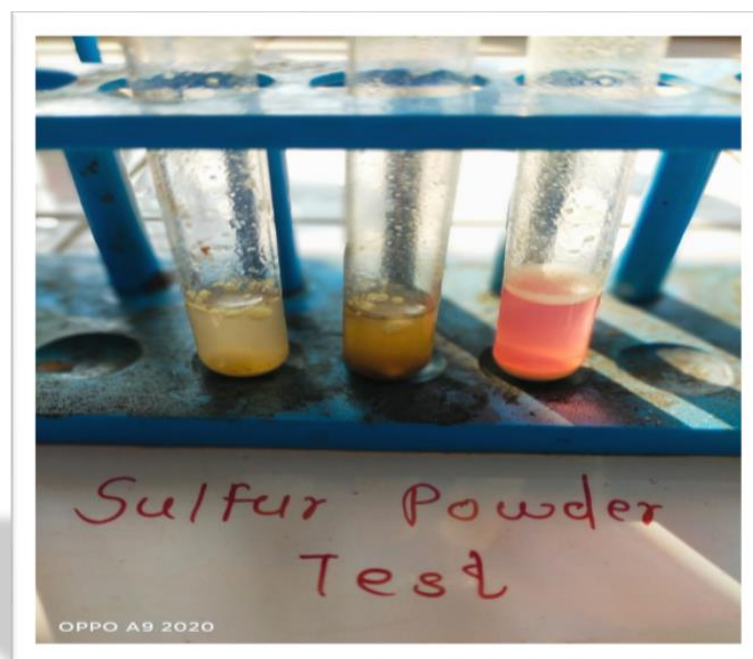
1.Salkowski Reaction :

To 2 ml of extract, add 2ml chloroform and 2 ml conc.H₂SO₄. Shake well. Chloroform layer appears red and acid layers shows greenish yellow fluorescence.



2.Sulphur Powder Test :

To 2 ml of test solution, add small amount of Sulphur powder. Shake well. Sulphur sinks at the bottom.



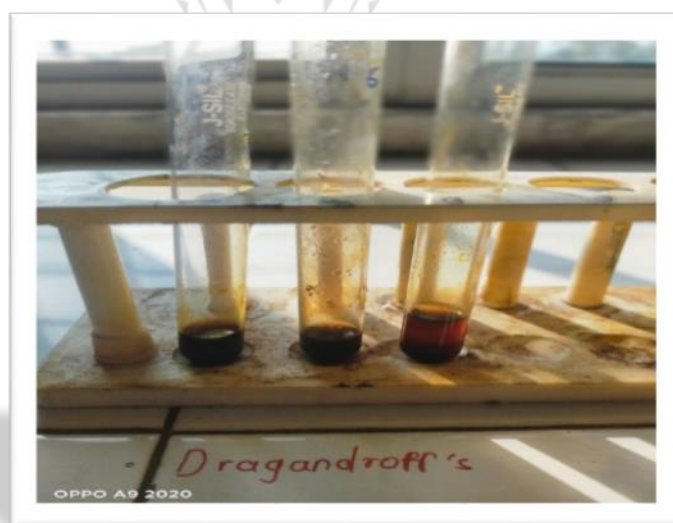
❖ **Observation Table For Steroids Test:**

<i>Sr.No</i>	<i>Test</i>	<i>Procedure</i>	<i>Observation</i>
1.	Salkowski Reaction	To 2 ml of extract, add 2ml chloroform and 2 ml conc.H ₂ SO ₄ . Shake well.	Chloroform layer appears red and acid layers shows greenish yellow fluorescence.
2.	Sulphur Powder Test	To 2 ml of test solution, add small amount of sulphur powder.	Sulphur sinks at the bottom.

❖ **Tests For Alkaloids:**

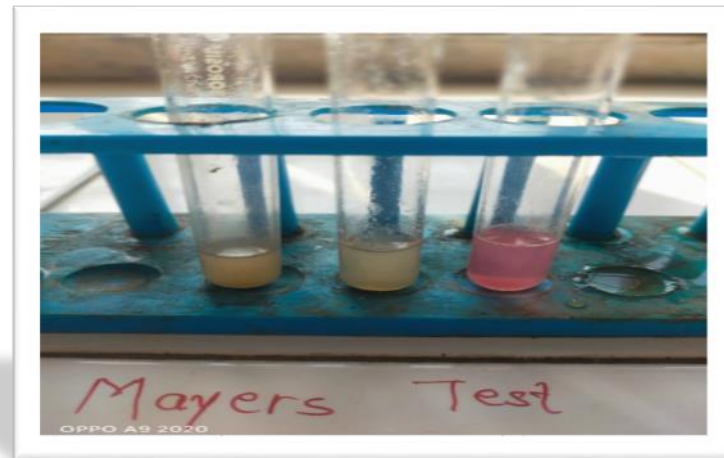
1) *Dragendorff's Test:*

To 2-3 ml filtrate, add few drops Dragendorff's reagent. Orange brown ppt. is formed.



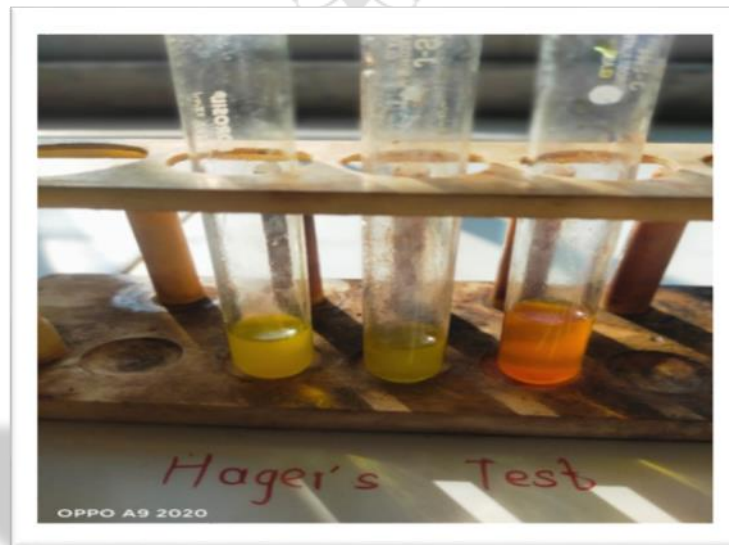
2) Mayer's Test :

To 2-3 ml filtrate with few drops Mayer's reagents gives ppt.



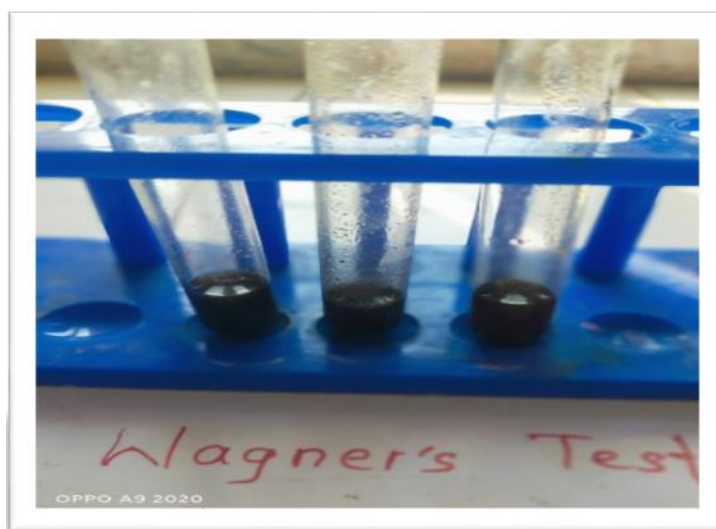
3) Hager's Test :

To 2-3 ml filtrate with few drops Hager's reagents gives yellow ppt.



4) Wagner's Test:

To 2-3 ml filtrate with few drops Wagner's reagents gives reddish brown ppt⁴.



Observation Table For Alkaloids Test:

Sr.No.	Tests	Procedure	Observation
1.	Dragendorff's Test	To 2-3 ml filtrate, add few drops Dragendorff's reagent.	Orange brown ppt. Is formed.
2.	Mayer's Test	To 2-3 ml filtrate with few drops Mayer's reagent.	Gives ppt.
3.	Hager's Test	To 2-3 ml filtrate with few drops Hager's reagent.	Gives yellow ppt.
4.	Wagner's Test	To 2-3 ml filtrate with few drops Wagner's reagent.	Gives reddish brown ppt.

❖ Awareness in people about use of Herbal Products:

There are large number of medicines which are obtained from plants. The use of Herbal medicine is very common worldwide. Many people prefer herbal medicine because of the

misconception that these remedies are inherently safe. The adulteration of crude drug is carried out in manner way. The herbal medicines are adulterated because most of the time the efficiency of the herbal drugs are not known. It is known fact that Herbal drugs act slowly. So to produce quick relief herbal drugs adulterate with steroids.

Several times patient notice adverse event due to steroids so we keep in mind many herbal drugs are adulterated with steroids. In that case we are studied to do vigilance on such cases and create awareness.

❖ CONCLUSION:

In this case report we conducted phytochemical screening of Herbal Pellets and we found the presence of steroidal substance in the given pellets. This test result is correlated with patient adverse effect so we conclude that the steroid is present in that pellets and patient suffering from steroidal side effect.

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