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New Iron Extracting Method from Cattle's Blood for Iron Concentration Analysis V.2

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Protocol status: Working
We use this protocol in our group and it is working. We will develop this protocol for better result

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Abstract

Cattle's blood component is compressed using centrifuge (5000 rpm for 10 minutes), then supernatant (erythrocytes) collected. Erythrocytes with a ratio of 3:1 (serum:supernatant), treated with initial mixing with NaOH (0.5 M) with an initial ratio 1:1 (v/v) and let it sit for 30 seconds then mixed it by centrifugation about 10 rpm for 30 seconds. Sample then treated by mixing oleic acid (2:1 v/v). The sample then dehydrated by heat about 121^{o}C for a week. Calculated total iron mass was 240000 µg/100 ml whole blood sample (about 14.40% content of the whole sample). Sample purified by furnace using high temperature about 800^{o}C for 2 hours and increased the iron concentration up to 46.30% (m/m%).

Materials

MATERIALS

Sodium Hydroxide **Merck MilliporeSigma (Sigma-Aldrich)**

STEP MATERIALS

Sodium Hydroxide **Merck MilliporeSigma (Sigma-Aldrich)**

we also used oleic acid as chelating agent

Protocol materials

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Troubleshooting

Sample preparation

1

Compress the whole blood sample from cattle. 6 mL 37 °C 00:10:00

Equipment

Mini-centrifuge	NAME
Centrifuge	TYPE
Fisher	BRAND
S67601B	SKU
https://www.fishersci.com/shop/products/fisherbrand-standard-mini-centrifuge-standard-mini-centrifuge/s67601b	LINK
Any standard mini centrifuge with adapters for different tube sizes will suffice	SPECIFICATIONS

5000 rpm

2

Mix 2 mL blood sample sample with 2 mL NaOH 37 °C 00:00:30

[M] 0.5 Molarity (M)

Sodium Hydroxide **Merck MilliporeSigma (Sigma-Aldrich)**

Expected result

dark green solution with strong odor

10 rpm , after we rest the mixed solution for 30 seconds

3 Chelate reaction by adding 4 mL Oleic acid into the previous mixed sample solution then let it sit for 00:00:30 . After that, mixed them by 10 rpm for 00:00:30 .

Expected result

Equipment

Centrifuge

NAME	Centrifuge
TYPE	Benchtop Centrifuge
BRAND	Eppendorf
SKU	5405000441
LINK	https://online-shop.eppendorf.us/US-en/Centrifugation-44533/Centrifuges-44534/Centrifuge-5425-PF-243560.html
SPECIFICATIONS	Any benchtop centrifuge will suffice