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DETERMINING THE QUALITY INDICATOR OF PARACETAMOL DRUG USING INFRARED SPECTROSCOPY EQUIPMENT.

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Abstract: There is a lot of illegal sale of low-quality drugs. In such cases, it is important to determine the authenticity and stability of the drug composition. The use of spectroscopic analysis methods can be an optimal solution to solve these problems.

Key words: mixtures, ika spectroscopy, qualitative analysis, chemical codes, toxic, spectrum, spectral analysis.

Paracetamol is a widely used central nonnarcotic analgesic with weak anti-inflammatory properties. However, when taken in large doses, it can cause damage to the liver, circulatory system and kidneys. With the simultaneous consumption of alcohol, the risk of damage to these organs and systems increases, so people who drink alcohol are recommended to use a low dose of paracetamol. Paracetamol is not a non-steroidal anti-inflammatory drug, its mechanism of action is completely different. Unlike ibuprofen, aspirin and other NSAIDs, paracetamol affects the nervous system and belongs to a different classification group. Paracetamol is included in the list of essential medicines of the World Health Organization, as well as in the list of vital and essential medicines of the Russian Federation. Paracetamol is the main metabolite of phenacetin with similar chemical properties. When taking phenacetin, it is quickly formed in the body and causes the analgesic effect of the latter. In terms of analgesic activity, paracetamol does not differ significantly from phenacetin, like it, it has weak anti-inflammatory activity. The main advantages of paracetamol are low toxicity and less ability to form methemoglobin. However, this drug can cause side effects with long-term use, especially at high doses, in particular, it has nephrotoxic and hepatotoxic effects. Nevertheless, paracetamol remains a safe and appropriate analgesic choice for children and is listed by the WHO along with ibuprofen as "the most effective, safe and cost-effective drugs". Paracetamol is used to reduce fever in people of all ages. The World Health Organization (WHO) recommends using paracetamol to treat fever in children with a temperature above 38.5C. In children with febrile body temperature, the effectiveness of paracetamol alone has been questioned, and a meta-analysis found that paracetamol was less effective than ibuprofen. Paracetamol does not have a significant anti-inflammatory effect. Compared with ibuprofen or paracetamol individually, these drugs may be more effective in reducing body temperature during the first four hours after taking them together (moderate-quality evidence). However, only one trial assessed the effect of combination treatment on reducing discomfort or anxiety and found no difference compared with ibuprofen alone or paracetamol alone. In practice, the

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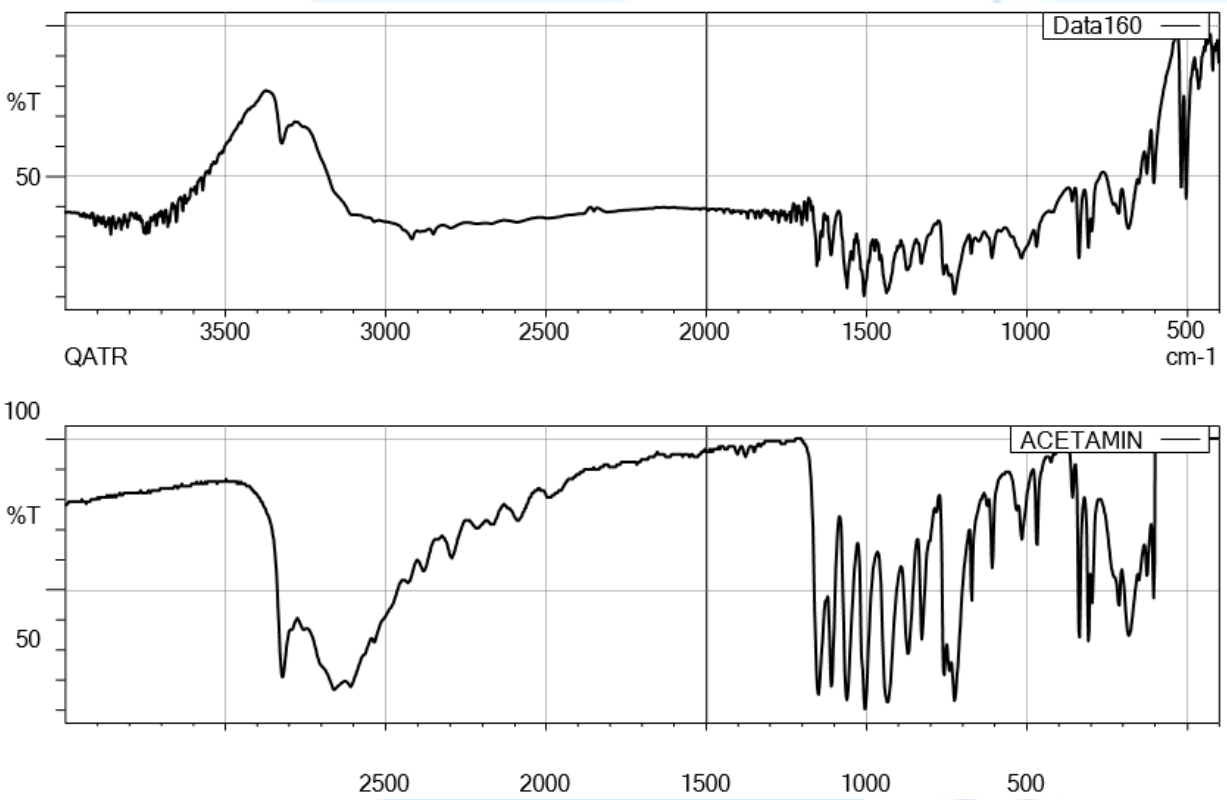
patient's carers are often advised to give one drug first (paracetamol or ibuprofen) and then, if the child's fever persists, to give a further dose of an alternative (drug). In this way (sequential) use of alternative therapies may be more effective in reducing body temperature (low-quality evidence) and in reducing discomfort in the child (low-quality evidence) in the first three hours after the second dose. Only one small trial compared sequential therapy with combination therapy and found no benefit for either treatment (very low-quality evidence). Acetaminophen (paracetamol), used for colds in adults, relieves nasal congestion and rhinorrhea, but does not improve sore throat, restlessness, sneezing, or cough. Paracetamol is not effective in preventing or treating pain in newborns (there is no scientific evidence of its effectiveness). There is low-quality evidence (weak evidence) that rapid intravenous paracetamol (used in emergency care) reduces pain in patients.

Paracetamol IRSpirit-spectrophotometer:



	Score	Library	Name	Comment
	852	5 - IRs Reagent2	ACETAMIN	Aceta minofenol HO-Ph-NHCOCH3 ATR/diamond ATRcorrected
	685	89 - T-Polymer2	Epoxy7	Epoxy Resin Transmission(Microscope)
	664	88 - ATR-Polymer2	D_Epoxy7	Epoxy Resin DuraSamplIR-II
	656	70 - T-Polymer2	Aramid Fiber	Aramid Fiber Transmission(Microscope)

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	653	37 - IRs Reagent2	C9H12	Mesitylene [C6H3(CH3)3 ; 1,3,5-trimethylbenzene] ORIGIN Date: 92/02/21 File: C9H12.DX INFRARED SPECTROPHOTOMETER FTIR-8000 SERIES
	650	160 - ATR-Polymer2	D_PVAc	Poly(Vinyl Acetate)(PVAc) DuraSamplIR-II
	650	45 - ATR-Polymer2	D_Epoxy3	Epoxy Resin(Electronic Parts-3) DuraSamplIR-II
	648	89 - IRs Agrichemicals	Halosulfuron-methyl	Halosulfuron-methyl Standard ATR method(KRS-5 prism)
	648	44 - T-Polymer2	Epoxy	Epoxy Resin(Electronic Parts-2) Transmission(Microscope)
2	641	44 - ATR-Polymer2	D_Epoxy2	Epoxy Resin(Electronic Parts-2) DuraSamplIR-II
3	638	43 - ATR-Polymer2	D_Epoxy1	Epoxy Resin(Electronic Parts-1) DuraSamplIR-II
4	638	45 - T-Polymer2	Epoxy	Epoxy Resin(Electronic Parts-3) Transmission(Microscope)
5	638	33 - ATR-Organic2	D_AcetylCellulose	AcetylCellulose DuraSamplIR
6	638	178 - ATR-Polymer2	D_Vinyl_Chloride_Vinyl_Acetate -3	Vinyl Chloride/Vinyl Acetate Copolymer(90% Vinyl Chloride, 10% Vinyl Acetate) DuraSamplIR-II
7	638	177 - ATR-Polymer2	D_Vinyl_Chloride_Vinyl_Acetate -2	Vinyl Chloride/Vinyl Acetate Copolymer(87% Vinyl Chloride, 13% Vinyl Acetate) DuraSamplIR-II
8	637	176 - ATR-Polymer2	D_Vinyl_Chloride_Vinyl_Acetate -1	Vinyl Chloride/Vinyl Acetate Copolymer(81% Vinyl Chloride, 17% Vinyl Acetate, 2% Maleic Acid) DuraSamplIR-II
9	637	54 - ATR-Polymer2	D_CR	Chloroprene Rubber(CR) with TALC DuraSamplIR-II
0	636	114 - ATR-Polymer2	D_N_Vinylpyrrolidone_Vinyl_Acetate	Vinylpyrrolidone/Vinyl Acetate 60/40 Copolymer
1	635	179 - ATR-Polymer2	D_Vinyl_Chloride_Vinyl_Acetate _Carboxylated	Vinyl Chloride/Vinyl Acetate Copolymer, Carboxylated(86% Vinyl Chloride, 13% Vinyl Acetate, 1% Carboxyl) DuraSamplIR-II
2	633	97 - ATR-Polymer2	D_Cellulose_Triacetate	Cellulose Triacetate(43.6% acetyl content) DuraSamplIR-II
3	626	127 - T-Polymer2	T_PhenoxyResin	Phenoxy Resin Transmission(Microscope)
4	625	13 - IRs Pharmaceuticals	PHENACETIN	PHENACETIN Formula; C10H13NO2 MW; 179.21 (WHO MELTING POINT REFERENCE STANDARD)
5	625	106 - ATR-Polymer2	D_EVA-6	Ethylene/Vinyl Acetate(EVA) Copolymer(Vinyl Acetate content 40%) DuraSamplIR-II
6	624	57 - IRs Polymer2	PVC	Poly vinylchloride (PVC) Film
7	623	3 - T-Inorganic2	TALC	TALC/3Mg4SiO2H2O Transmission

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8	623	10 - IRs Polymer2	EPOXY1	Epoxy resin (liquid) ATR/diamond ATRcorrected
9	623	105 - ATR-Polymer2	D_EVA-5	Ethylene/Vinyl Acetate(EVA) Copolymer(Vinyl Acetate content 33%) DuraSamplIR-II
0	622	15 - A_FoodAdditives2	A_Eugenol-4	Eugenol(Sales origin;Wako Pure Chemical Industries, Ltd.)@DuraSamplIR2(diamond)

In conclusion, it can be said that using this method, it is possible to prove that mixtures with the same composition are qualitatively and quantitatively similar. For this, it is necessary to determine the mixture in different aggregate states or the mixture of drugs with qualitatively and quantitatively accurate composition analysis. we can compare.

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