Studies on Anti-Trichuris Constituents of Embelia ribes, A Nepali Traditional Medicine

1993 Fiscal Year Final Research Report Summary

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Research Project

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04670226

Research Category

Grant-in-Aid for General Scientific Research (C)

Allocation Type

Single-year Grants

Research Field

寄生虫学(含医用動物学)

Research Institution

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Keywords

Embelia ribes / Anti-Trichuris activity / Trichuris muris / Embelin / Gallic acid / Potassium embelate / Dimer / BALB / c mice

Research Abstract

A nepali traditional medicine "Bayubidanga", fruits of Embelia ribes (a family of Myrsinaceae), has been known to be effective to tapeworms. Since the medicine is reported to be also effective to whipworms and Ascaris, our work was undertaken to clarify what constituent(s) is responsible to this activity.
Extraction of E.ribes with ether gave known constituent, embelin, as an active principle, while extraction with hot water resulted in another active principle, gallic acid, suggesting that embelin was decomposed into different compound(s) on contact with hot water. In vitro activities of these principles were 0.01 mg/ml and 0.5-1 mg/ml to dog whipworm. Trichuris vulpis, respectively.
The features of decomposition of embelin in boiling water and in methanol (organic solvant) were clarified that the former treatment yielded a "dimer" and the leatter treatment gae O-methyl derivative.
In vivo anti-Trichuris activity of embelin and its derivatives was examined using mice infected with T.muris. It was found that, among E.ribes decoction, embelin, and its derivatives, onlyh potassium embelate was effective (70-100%) cure rate), when applied to BALB/c mice pretreated with hydrocortisone acetate before infection. The activity was comparable to the known anti-Trichuris drug, mebendazole. On the other hand, neither potassiumembelate nor mebendazole was effective, when applied to infected mice (both BALB/c and ICR) pretreated with predonisolone butylacetate, suggesting that infection method largely influences on the result of eficacy of medicine. Contrary to these medicines, ivermectin was constantly effective to all mice tested in this investigation.

Research Products (5 results)

All | Other

All | Publications (5 results)

[Publications] Fumiyuki Kiuchi: "Nematocidal Activity of Long Alkyl Chain Amides,Amines,and Their Derivatives on Dog Roundworm Larvae" Chemical and Pharmaceutical Bulletin. 40. 3234-3244 (1992)

[Publications] Nobuaki Akao: "In vitro Assessment of Morbility of Toxocara canis Larvae Using a Dye Exclusion Assay" Japan Journal of Parasitology. 41. 519-526 (1992)

[Publications] Nobuaki Akao: "Changing Chemosusceptibility in the Second-stage Larvae of Toxocara canis by Long-term Incubation" Journal of Helminthology. 67. 145-150 (1993)

[Publications] Fumiyuki Kiuchi: "Nematocidal Activity of Turmeric:Synergistic Action of Curcuminoids" Chemical and Pharmaceutical Bulletin. 41. 1640-1643 (1993)

[Publications] Yosisuke Tsuda: "Anti-Trichuris Activity of Embelia ribes Fruits" Collected Papers on the Control of Soil-transmitted Helminthiases by the APCO Research Group. 5. 194-200 (1993)

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